The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 24. NO. 45. TULSA, OKLAHOMA, APRIL 1, 1926

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The OIL and GAS JOURNAL Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for.....year. Enclosed find remittance $.....

Classify my interests as checked by me.

..... Producing ..... Refining
..... Equipment ..... Marketing

Name.....
Address.....
City.....

$6 a Year
$3 6 Months

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Refinery Section Starts on Page 134

Gen
Walsh

Mexican Situation Important to U. S.

Highest daily average estimated production week ended May 30, 1925, 2,347,984 bbls. Lowest in 1925, January 3, 1,911,730 bbls.

General Shutdown There Until Law is Modified Not Improbable. Conditions Here Continue Good

By Andrew M. Rowley

Highest daily average estimated light oil production in 1925, week ended January 17, 1,525,220 bbls. Lowest in 1925, July 18, 1,374,173 bbls.

While the completion by the Sinclair Oil & Gas Company of a record gusher in the Garber Field Oklahoma attracted attention of oil men throughout the country during the past few days, a development of early this week really overshadows that of general importance. It is the issuance by the Mexican Government in its official gazette of the petroleum regulations without modification of the clauses to which American oil men and those of other nationalities seriously objected and which had been the subject of conferences just closed in Mexico City. So serious is the situation regarded by high officials of leading oil companies operating in Mexico that a general shutdown of operations is not entirely improbable. It is claimed the new law clouds the title to all the lands acquired prior to 1917 and that to continue operation presents an impossible business situation. As most of the production of Mexico finds its way into the United States, developments in that country are vitally important to the entire industry here.

The Sinclair gusher in the Garber Field in Oklahoma and good wells in the Wewoka Field in the same state were responsible for a big gain in production in Oklahoma which contributed a major part of the increase for the whole country. Another increase in Oklahoma this week is probable as the full effect of the production of the big well will be felt, it only being figured in two days' output for the past week. The production of the Garber Field early this week was 53,000 barrels.

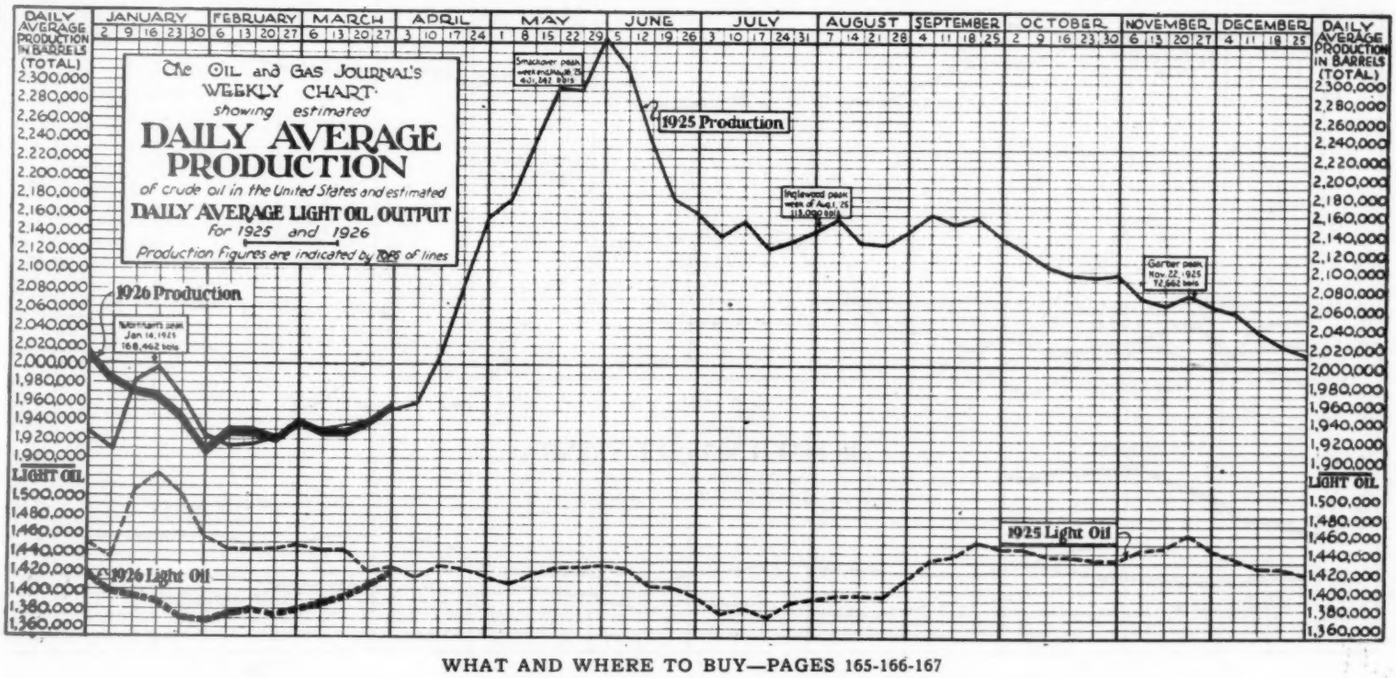
The general petroleum situation continues to look exceptionally good. Withdrawal from storage of a little less than 200,000 barrels daily is continuing in the Mid-Continent area. The Boling Dome section in the Gulf Coast does not look as promising as it did and a well in the Cole gas field in Southwest Texas, which had made 500 bbls. daily, did not make anything but gas after being shut in for storage. Flood conditions in the Arkansas territory probably will slow up operations in that area although they had little effect last week. California is maintaining its production and an important extension was made early this week to the Ventura Avenue Field. A test of a possible deep horizon in the Inglewood Field will be an important development to be watched closely. Many oil men are interested in the possibilities of Michigan and it is probable a thorough test will be made in that area within the near future.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity crude oil in the United States for week ended March 27, and a comparison with the previous week follows:

	Mar. 27		Mar. 20	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	42,040	.....	41,845	.....
Burbank	43,565	.....	43,830	.....
Other Osage Fields	33,040	.....	33,030	.....
Cushing and Shamrock	22,310	.....	22,420	.....
Bristow and Eastern Bristow	30,970	.....	31,445	.....
Cromwell	18,630	.....	18,535	.....
Papoose	12,945	.....	12,880	.....
Garber	30,145	.....	24,160	.....
Blackwell-Braman	17,440	.....	18,270	.....
Davenport	20,740	.....	21,635	.....
Thomas	6,780	.....	7,035	.....
Northern Miscellaneous	115,675	.....	109,440	.....
Southern Fields	67,735	.....	66,885	.....
Total Oklahoma	462,015	.....	451,410	.....
North Louisiana	48,335	.....	48,655	.....
Arkansas—				
El Dorado and Calion	7,605	.....	7,545	.....
Smackover Light	17,635	.....	18,505	.....
Smackover Heavy	.....	134,560	.....	133,190
Miscellaneous	8,245	.....	5,825	.....
Total Arkansas	33,485	134,560	31,875	133,190
North Central Texas	171,300	.....	170,290	.....
Powell	31,700	.....	31,750	.....
Mexia, Currie, Richland, etc.	15,810	.....	16,440	.....
Wortham	10,800	.....	10,740	.....
Kansas	103,320	.....	102,810	.....
Total Mid-Continent Area	876,765	134,560	863,970	133,190
Gulf Coast	.....	100,165	.....	96,405
Southwest Texas	.....	39,000	.....	39,810
Eastern	98,100	.....	98,325	.....
Rocky Mountain Area	105,705	.....	104,835	.....
California—				
Santa Fe Springs	49,500	.....	49,500	.....
Long Beach	111,500	.....	112,000	.....
Huntington Beach	44,500	.....	45,000	.....
Torrance	5,000	23,000	5,000	23,000
Dominguez	20,500	.....	21,000	.....
Rosecrans	20,500	.....	20,500	.....
Inglewood	28,500	22,000	28,000	22,000
Remainder of State	60,000	220,000	60,000	220,000
Total California	340,000	265,000	341,000	265,000
Total United States	1,420,570	538,725	1,408,130	534,405
Grand Total		1,959,295		1,942,535

Total Increase, 16,760 Bbls.; Light Oil Increase, 12,440 Bbls.



WHAT AND WHERE TO BUY—PAGES 165-166-167

Oklahoma Refined Market Strengthen

Gasoline Prices Advanced Despite Lack of Important Buying During Week. Weather Is Real Factor Now. Other Products Unchanged

By Neil Williams

Additional advances in gasoline prices featured the Oklahoma (Group 3) refined market the past week. Outside of this the market was practically unchanged with fuel oil, gas oil and distillates still almost unobtainable, kerosenes steady and natural gasolines and lubricants uncertain. Gas oil possibly was slightly easier than in previous weeks.

Gasoline prices climbed despite the fact that the greatly increased number of inquiries received by refiners early last week did not develop into a wave of domestic buying as had been expected by some. However, trading was not as dull as in previous weeks of the past two months, and in addition exporters continued to pick up higher gravity material.

This strengthening of gasoline without the aid of buying of importance bore out the belief held by a number of market students for some time that refiners in reality were in a good position and that only a little increased activity would turn the market upward.

With the slightly increased domestic demand, some refiners showed a tendency to push their quotations up rapidly but the majority were content with a natural gradual strengthening of prices justified by actual consumption demands. Refiners on the whole made only little effort to move their products and in only few instances were buyers able to shade prices under the quoted markets.

While the past week as a whole was encouraging to refiners, the steady rains and snows which have been sweeping the country east of the Rocky Mountains the past few days cast a cloud on the horizon which may have an important bearing on the market the next few weeks.

Refiners generally have been anticipating a minimum 10½-cent U. S. Motor gasoline market during April and the trend the past week was toward that realization but a continuation of the storms and cold naturally would cause a lessening of motor fuel consumption which would be reflected in weakened refined prices.

Market Optimistic

So far there has been no apparent tendency on the part of refiners to ease up on their quotations because of the slackening demand. However, some marketers, as mentioned in previous market reviews, have considerable material purchased long in the past two weeks as low as 9¾ and 10 cents, and if there is any difficulty in moving this it in all probability can be and will be thrown on the market at prices much lower than actual refinery quotations.

On the other hand, refiners do not expect the cold and rains at this time to be of long duration and believe that at the first indication of another sea of good weather jobbers will be back the market with substantial inquir and orders. The quickness with wh inquiries began to come in at the break in bad weather indicated that j bers did not have large stocks and wo need gasoline as soon as the motor e sumption demanded it.

Although jobbers may not make la purchases to fill this empty storage advance of the motoring season, their ders naturally will increase from n on if only to meet the needs of the gre ing public consumption. A situation this kind, it is pointed out, would be greater value to refiners than if th was an attempt on the part of jobb to fill their storage. In view of the creasing consumption, buying by jobb to cover only their actual needs wou mean a steadily advancing refined mark until the peak of the motoring season.

The extent of the gasoline dema also will play an important part in t gas oil, distillate and fuel oil situati this spring. If April gasoline consum tion gains, the increased demand f cracking stock will offset and let-up industrial needs of gas oil, distillates a fuel oil. On the other hand if gasoli demand is slow an easing up in the crac ing stock products may be reflected.

Gasoline and Naphtha

The firmness of gasoline the past we was clearly indicated in advances quotations on nearly all grades of quarter to a half-cent and the ability refiners to get these prices. Refine were not inclined to offer material freel and buyers to fill their needs found useless to hunt far for bargains. Pur chases of a reported several million ga lons of various grades of higher gravi

(Continued on Page 151)

REFINED MARKET BAROMETER

Refined price trends generally were upward the past week, particularly in the Mid-Continent where refinery gasoline quotations were advanced from a quarter to half-cent. Gasoline demand showed improvement although rains and snows sweeping the country east of the Rocky Mountains caused some uncertainty as to markets the coming week. Kerosene maintained a steady course in most districts and exceptions were for greater strength. Gas oil, distillates and fuel oil on the whole were unchanged although gas oil was slightly easier at eastern refinery centers. The strength of these products again centered in the Mid-Continent where they were almost unobtainable. Lubricating oils were somewhat spotted although these products were not strong in any area. A better movement was seen in the Mid-Continent but in most areas the demand was disappointing. Natural gasolines were uncertain in areas east of the Rocky Mountains but expected purchases during April forecast better conditions in the Mid-Continent.

Mid-Continent—Gasoline prices advanced from a quarter to a half-cent in most areas with demand only slightly increased. Some additional export purchases helped higher gravities. Gas oil, distillates and fuel oil still scarce, particularly in Oklahoma. Kerosenes steady generally with increasing strength in North Texas. Natural gasolines soft and uncertain. Lubricant movement slightly improved.

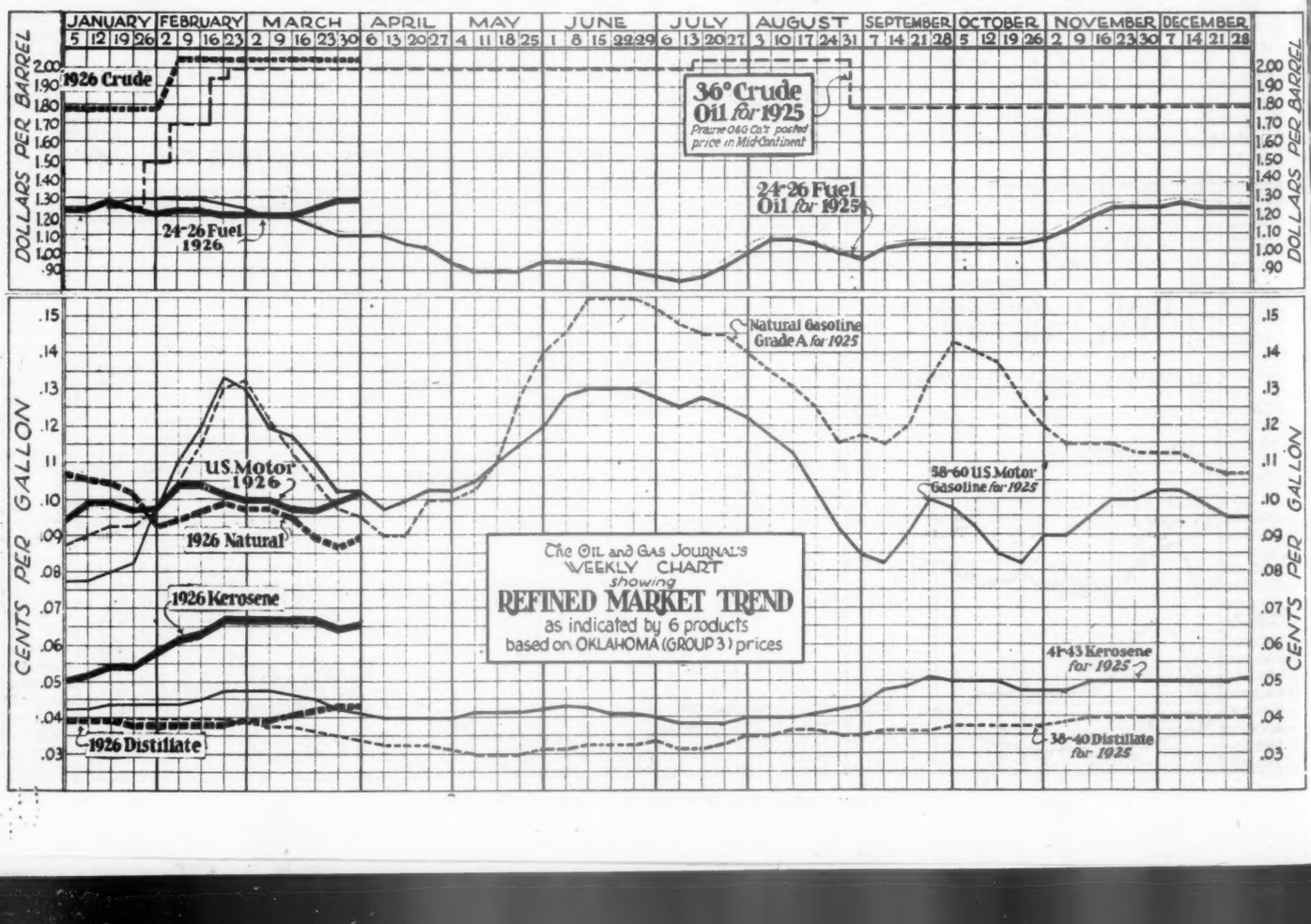
Atlantic Seaboard—General market still uncertain but slightly better tone prevails in gasoline. Kerosene unchanged. Gas oil easier. Diesel oil demand improves. Lubricants disappointing. Other products unchanged.

Pennsylvania—Gasoline demand still low. Cylinder stocks weak but neutrals in good demand. Kerosene strong with higher prices. Fuel oil holding.

Chicago—Gasoline more active but market still generally quiet. Kerosene stronger. Gas oil scarce. Fuel oils unchanged. Lubricant consumption light.

Gulf Coast—Nearly all products fairly steady with price changes confined to only a few grades of lubricants.

California—General situation unchanged. Natural gasolines strong.


JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
DOLLARS PER BARREL
1926 Crude
24-26 Fuel 1926
36° Crude Oil for 1925
Prairie 046 Co's posted price in Mid-Continent
24-26 Fuel Oil for 1925
CENTS PER GALLON
Natural Gasoline Grade A for 1925
U.S Motor 1926
1926 Natural
1926 Kerosene
1926 Distillate
38-60 U.S Motor Gasoline for 1925
41-43 Kerosene for 1925
38-40 Distillate for 1925
The Oil and Gas Journal's WEEKLY CHART showing REFINED MARKET TREND as indicated by 6 products based on OKLAHOMA (GROUP 3) prices

Chemists Meet Next Week in Tulsa

Program of Special Interest to Manufacturing End of Oil Industry to Feature Convention of American Chemical Society

The seventy-first meeting of the American Chemical Society will open next Monday, April 5, at the Hotel Mayo, Tulsa, and extend through Friday, April 9. Several hundred chemists from all parts of the country will be in attendance at the convention which from the standpoint of the petroleum industry is the most important ever held.

The Petroleum and Industrial Divisions will hold on Tuesday afternoon a joint symposium on lubrication, with Dr. Robert E. Wilson, research director, Standard Oil Co. of Indiana, as chairman. Contributions from some of the best authorities on lubrication, both American and foreign, will be presented. Papers on special lubrication problems will also be included, together with a careful discussion of lubrication theory and practice. Dr. A. E. Dunstan, the eminent English author on lubrication, will read a paper. Dr. R. R. Matthews, Roxana Petroleum Corp., chairman of the Petroleum Division, will preside after the close of the lubrication program.

Fifty Papers to Be Presented

There will be about fifty papers presented before this important joint meeting of the two divisions of the society,

Dr. R. R. Matthews, Roxana Petroleum Corp., St. Louis, Mo., who will preside at meetings of petroleum division

and will be the most comprehensive list of subjects on petroleum technology ever presented before any organization in America. The subjects, which are so important to refiners at this time, will be discussed by our foremost experts. Vapor phase treatment, cracking, shale gasoline, aromatic hydrocarbons in natural gasoline, centrifugal process, desulphurizing, gum formation, wax, alcohols from petroleum, research endowment and pure hydrocarbons are among the topics.

The oil fraternity is invited to attend these meetings and no doubt there will be a record attendance. The public address on Tuesday evening by Doctor Little, "The Romance of Carbon," will be entertaining and worth hearing.

The president of the society, Dr. James F. Norris, recently reported that chemistry was making vital contributions to the automotive industry and suggested that carburetors are throwing gas away at the rate of millions of dollars a year.

"Research," Doctor Norris said, "has started to find out what happens in internal combustion. The use of ethyl fluid was the beginning of an important discovery on timing explosions at the right speed and in producing four or five times the present power.

"The public, unfortunately, has confused the hazard of manufacture of ethyl gasoline with the hazard of use, but a committee working under the direction of the United States Public Health Service has cleared away misapprehension.

"Research is now being directed toward synthetic rubber. The rubber tire industry is an achievement of chemists, by whom the production of rubber from petroleum, under right conditions, is not impossible."

GENERAL PROGRAM

American Chemical Society
April 5, 6, 7, 8 and 9
Mayo Hotel, Tulsa, Okla.

MONDAY, APRIL 5

10:00 a. m.—Registration Bureau opens on Sixteenth Floor, Mayo Hotel.
10:00 a. m.—Meeting of Senate of Chemical Education, Sixteenth Floor, Mayo Hotel.
2:00 p. m.—Council Meeting, Mayo Hotel.
8:00 p. m.—Entertainment, Mayo Hotel.

TUESDAY, APRIL 6

9:30 a. m.

General Business Meeting, Mayo Hotel.

11:00 a. m.

General Meeting
Crystal Ball Room, Mayo Hotel.

Address of Welcome:
Charles K. Francis, Chairman of Oklahoma Section.
Cyrus S. Avery, Chairman, Oklahoma Highway Commission, **"What Oklahoma Has to Offer."**
David W. Moffitt, Vice President, Mid-Continent Petroleum Corp., **"Research Opportunities."**
Response:
James F. Norris, President, American Chemical Society.
General Paper:
B. S. Hopkins, J. Allen Harris, and L. S. Yntema **"Element Number Sixty-One."**

2:00 p. m.

General Symposia
"LUBRICATION," by Divisions of Petroleum Chemistry and Industrial and Engineering Chemistry.
"ORIENTATION AND SEGREGATION AS APPLIED IN CHEMICAL EDUCATION," by Division of Chemical Education.

6:00 p. m.

Dinner of Division of Petroleum Chemistry and Other Group Dinners.

8:30 p. m.

Public Address
A. D. LITTLE, of A. D. Little, Inc., Boston, **"THE ROMANCE OF CARBON."**

WEDNESDAY, APRIL 7

9:00 a. m.

Divisional Meetings at Mayo Hotel. See Divisional Programs.

2:00 p. m.

Divisional Meetings continued.

8:00 p. m.

Entertainment and Smoker, Mayo Hotel.

THURSDAY, APRIL 8

9:00 a. m.

Divisional Meetings continued.

Excursions

1. Afternoon, 1:30 to 5:00 p. m.—Trip to the various industries at Sand Springs, Okla., including cotton mill, glass works, salt refinery, Pierce Oil Corp., refinery, and the Sand Springs home. Sand Springs is about 10 miles by trolley from Tulsa.
2. Another afternoon trip, optional with the foregoing, is an automobile tour through the oil fields by way of Jenks, Keifer, Glenpool, Mounds, and Sapulpa. These fields are rather old, but are the largest in the vicinity of Tulsa. The trip will cover approximately 45 miles over dirt and paved roads.

FRIDAY, APRIL 9

Excursions

1. Morning, 9 a. m. to 12:00 noon.—Trip through refineries, Producers & Refiners Corp., Mid-Continent Petroleum Corp., (formerly Cosden & Co.,) and The Texas Company Refinery, where the Holmes-Manley stills may be seen. These refineries are just a 15-minute trip by street car or auto bus from the heart of the city.
2. All day trip, 8 a. m. to 7 p. m.—Through the lead and zinc mining districts in the vicinity of Miami and Picher, Okla. The trip will be made to Miami by train, and from there to Picher and the various mines by automobile. The round trip train fare is $6.48; the auto transportation will be furnished by the Chamber of Commerce at Miami.

LADIES' PROGRAM

Ladies' Headquarters, Mezzanine Floor, Mayo Hotel.
Monday, April 5—Entertainment, Mayo Hotel.
Tuesday, April 6, 3 p. m.—Tea at the residence of Mrs. G. C. Spillers.
Tuesday, April 6, 8:30 p. m.—Public address, Crystal Ball Room, Mayo Hotel.
Wednesday, April 7, 2:00 p. m.—Drive.
Wednesday, April 7, 7:30 p. m.—Theater party.
Thursday, April 8.—Excursions.

PROGRAM PETROLEUM DIVISION
April 6, 7 and 8

Following is the program as announced for the petroleum division:

"Cracking Liquid Petroleum Oils," by E. H. Leslie and E. H. Potthoff, University of Michigan, Ann Arbor, Mich.

"The Determination of the Unsaturated, Aromatic, Naphthene and Paraffin Hydrocarbons in Motor Fuels and Their Automotive Equivalents," by Gustav Egloff and Jacque C. Morrell, Universal Oil Products Co., Chicago, Ill.

"The Aliphatic Tertiary Alcohols and Their Industrial Possibilities," by Harold S. Davis and Wallace J. Murray, Arthur D. Little, Inc., Cambridge, Mass.

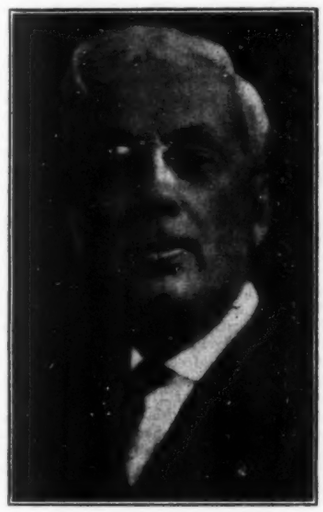
"The Specific Heats of Petroleum Oils," by A. R. Fortsch and Walter G. Whitman, Standard Oil Co. of Indiana, Whiting, Ind.

"Cracking of Shale Oil and Types of Motor Fuel Obtained Therefrom," by Jacque C. Morrell and Gustav Egloff, Universal Oil Products Co., Chicago, Ill.

"The Chemistry of Gasoline, With Respect to Color, Stability and Gum Formation," by Benjamin T. Brooks, 50 East 41st St., New York, N. Y.

"The Cracking of Smackover Heavy Crude Oil to Produce Motor Fuel of Anti-Knock Properties," by Gustav Egloff and Jacque C. Morrell, Universal Oil Products Co., Chicago, Ill.

"The Effect of Pressure and Temperature on the Total Volume of Partially Vaporized Mid-Continent Crude," by Robert E. Wilson and H. G. Schnetzler, Standard Oil Co. of Indiana, Whiting, Ind.



Dr. James F. Norris, president of the American Chemical Society. Doctor Norris is professor of chemistry in the Massachusetts Institute of Technology.

"The Development of a Liquid Phase Cracking Process," by S. J. M. Auld and A. E. Dunstan, Anglo-Persian Oil Co., London, England.

"The Design of Treating Equipment," by Jacque C. Morrell and Donald J. Bergman, Universal Oil Products Co., Chicago, Ill.

"The Separation of the Less Volatile Constituents of Petroleum," by Harold M. Smith, United States Bureau of Mines, Bartlesville, Okla.

"Photomicrographs of Precipated Wax," by F. W. Padgett and D. G. Hefley, University of Oklahoma, Norman, Okla.

"Desulfurizing Effects of Sodium Hypochlorite on Naphtha Solutions of Organic Sulfur Compounds," by A. E. Wood, A. R. Greene and R. W. Provine, Mississippi College, Clinton, Miss.

"The Sharples Process," by Max B. Miller, 501 Fifth Ave., New York, N. Y.

"A Method for the Precise Determination of Aromatic Hydrocarbons in Gasoline," by A. M. Erskine, Hamilton College, Clinton, N. Y.

"The Aromatic Hydrocarbon Content of Natural-Gas Gasoline," by A. M.

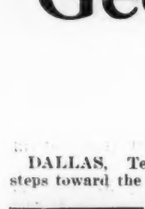
(Continued on Page 150)

Geologists Hold Record Convention

Will Establish Permanent Headquarters and Select Business Manager. Tulsa Chosen for 1927 Meeting

By C. D. Lockwood

DALLAS, Tex., Mar. 27.—Definite steps toward the establishment of permanent headquarters and the employment of a full time business manager were the outstanding features of the eleventh annual convention of the American Association of Petroleum Geologists here this week. It was the largest meeting in point of attendance that the association has ever held and was in many other ways the best convention that the geologists have known. More than 700 regular and associate members of the organization signed up at the registration desk in the Baker Hotel and more than 300 of these brought their wives along. In addition to these 1,000 members and their better halves the registration list included more than 350 visitors. That these figures are conservative is shown by the fact that 1,100 banquet tickets were sold and at least 300 applications had to be turned down. As one prominent Dallas oil man remarked, "It looks like an A. P. I. convention."



Alex W. McCoy, vice president of the Marland Oil Co. of Colorado, was elected president of the association for the coming year at the business session Saturday morning, receiving 193 votes to 184 for John R. Suman, vice president of the Rio Bravo Oil Co. of Houston, or a scant margin of nine votes which indicates the high popularity enjoyed by both of these men throughout the organization. C. R. McColiom, chief geologist of the Union Oil Co. of California was elected vice president with 217 votes to 160 for Dr. J. W. Beede, chief geologist in west Texas for the Dixie Oil Co. (Standard of Indiana). Fritz L. Aurin, chief geologist of the Marland Oil Co. of Oklahoma, won the office of secretary-treasurer over Dr. C. E. Decker, who was up for reelection, by a count of 218 to 155. The editorship of the Association Bulletin went to John L. Rich, consulting geologist of Ottawa, Kans., by unanimous consent as he was the only candidate nominated. An impressive ovation lasting fully five minutes was tendered Doctor Decker by the convention in appreciation of his years of service to the association.

To Select Headquarters

The newly elected officers and retiring president, E. DeGolyer, head of the Amerada Petroleum Corp. went into executive session immediately following the adjournment of this morning's meeting but definite announcement concerning the location of the permanent headquarters for the association and decision regarding the man who will be employed as business manager will not be made for some time. It is expected, however, that these decisions will be made public within 30 days. Tulsa, Dallas and Ft. Worth are favored for permanent headquarters, although certain considerations are favorable to other cities and the executive committee intends to weigh the matter carefully before taking any definite action.

The Tulsa delegation of 150 geologists and their wives descended like a conquering host on the others assembled at Dallas and practically made certain the selection of the oil capital as the 1927 convention city. As the Tulsa geologists gazed over the packed auditorium in the Baker Hotel, however, with every one of the 1,000 seats occupied at many of the sessions and with scores of visitors standing around the sides and in the rear of the big hall, their satisfaction was somewhat tempered with a realization of their responsibility. If the growth of the association during the coming year even approaches its expansion in the past the 1927 meeting will just about eclipse everything of its kind in the oil business.

Association's Big Growth

At the opening of the convention President DeGolyer commented on this growth and humorously chided Dallas for failing to keep pace with the association. "When the association first met here in 1919," he said, "the membership was 200. In 1920 it was 392, and now it is 1,500. Our growth since the first meeting here has been 450 per cent while Dallas' growth has been only 120 per cent, so you see we are growing faster than Dallas." His remarks were made in response to an address of welcome by John C. Harris, finance commissioner of the city, who made a big hit with the visitors when he explained some of the peculiar functions of the key to the city which he was presenting to the geologists and when he further stated that he was temporarily police commissioner and had instructed the police department not to molest any visitor in the city unless he was found not having a good time. "If any are found not enjoying themselves," he added, "they are to be brought to headquarters here to find out the reason why." It is not recorded that any geologist had to be taken to headquarters.

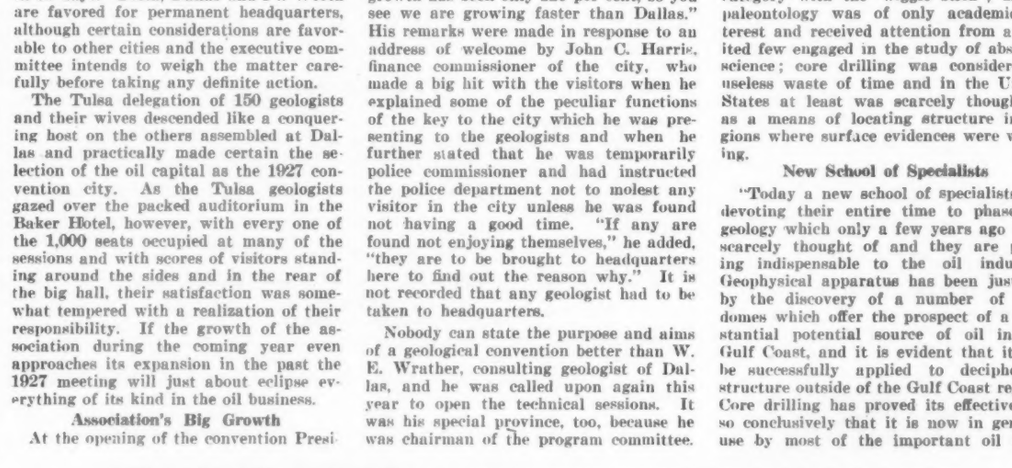
Nobody can state the purpose and aims of a geological convention better than W. E. Wrather, consulting geologist of Dallas, and he was called upon again this year to open the technical sessions. It was his special province, too, because he was chairman of the program committee.

"Eleven years ago," he said, "when t association was organized it would h been preposterous to have proposed a one of the three major topics dealt wi in this program for general discussi among a gathering of petroleum geo gists. Geophysical apparatus was look upon with scorn and was classed in t category with the 'wiggle stick'; micr paleontology was of only academic i terest and received attention from a li ited few engaged in the study of abstra science; core drilling was considered useless waste of time and in the Unite States at least was scarcely thought as a means of locating structure in r gions where surface evidences were wan ing.

New School of Specialists

"Today a new school of specialists ar devoting their entire time to phases geology which only a few years ago wer scarcely thought of and they are prov ing indispensable to the oil industry Geophysical apparatus has been justifie by the discovery of a number of sal domes which offer the prospect of a sub stantial potential source of oil in th Gulf Coast, and it is evident that it ca be successfully applied to decipherin structure outside of the Gulf Coast region Core drilling has proved its effectiveness so conclusively that it is now in general use by most of the important oil com-

NEW OFFICERS, AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS



Left to right: Charles R. McCollom, vice president; Alex W. McCoy, president; E. L. DeGolyer, retiring president; John L. Rich, editor Association Bulletin; Fritz L. Aurin, secretary-treasurer. Mr. McCollom is chief geologist for the Union Oil Co. of California, Los Angeles; Mr. McCoy is first vice president of the Marland Oil Co. of Colorado, Denver; Mr. DeGolyer is president of the Amerada Petroleum Corp., New York; Mr. Rich is consulting geologist, Ottawa, Kans.; and Mr. Aurin is a director and chief geologist of the Marland Oil Co. of Oklahoma.

OPENING SESSION OF GEOLOGISTS' CONVENTION IN BAKER HOTEL, DALLAS, TEXAS

...nies in the Mid-Continent region, and ... knowledge of micropaleontology has ... instrumental in establishing definite ...orizon markers in the midst of forma... which previously defied differentia...

"Petroleum geology has in recent years ... so split up into highly specialized ...ds that no one individual can any ...ger be equally proficient in all. Not ...ll of us aspire to own or operate a ...orsion balance or a seismograph, nor do ...we hope to be on terms of familiar speak... ...ng acquaintance with the myriad micro... ...scopic forms of life entombed in oil field ...formations. Yet we cannot afford not to ...know something about the technique of ...these several groups of our fellow work... ...ers if for no other purpose than to be ...able to formulate an independent indi... ...vidual appraisal of their value toward ...solving the problems with which we have ...to deal in our profession.

"The first topic, dealing with the origin ...of oil, we have ever with us, an unan... ...swered query which today arouses as ...active and diverse discussion after years ...of speculation as it did when petroleum ...geology was in its infancy. We are ...agreed, perhaps, that oil is of organic ...origin but at that point our agreement ...ends. We are unable to state with cer... ...tainty the types of organic life, whether ...plant or animal, which contribute the ...hydrocarbons from which any particular ...type of oil was evolved. We are in doubt ...as to whether it originated in liquid form ...or passed through its primary stages as ...a solid. Our efforts as petroleum geolo... ...gists have been largely directed toward ...methods of locating structure, and this ...continues to be our major aim as is amply ...demonstrated by this program. We are ...hunters in pursuit of game whose habits ...we understand imperfectly. We have per... ...haps discovered the favorite type of hid... ...ing place of our quarry but the familiar ...haunts are rapidly being hunted out and ...if we are to succeed in the future it is ...of vital importance that we acquire a ...more intimate acquaintance with the ob... ...ject of our efforts. Hence a discussion ...of the origin of oil will remain a timely ...topic perhaps for some time to come, and ...it will continue to be worth our while ...to occasionally take stock of our theories ...and come to some conclusion as to how ...far we have succeeded in reducing them ...to demonstrated facts."

To Employ Manager

The resolution authorizing the incoming executive committee to employ a full-time business manager and establish permanent headquarters of the association, was drawn up by the general business committee and presented at the opening business session by Mr. Wrather as chairman of the committee and was passed without dissent. It reads as follows:

"Whereas, This association's increased size and greater scope of activity require a further development of methods for carrying on its work;

"And whereas, The association in annual meeting assembled in Wichita, Kans., in March, 1925, authorized the executive committee to study and in its discretion modity the methods of carrying on the association's business;

"And whereas, The executive committee has, through the president and vice president, in whose hands it placed the matter, devoted much time to such a study, but has not yet put into effect the results thereof;

"Now therefore be it resolved, That the incoming executive committee and its successors be and they are hereby empowered and instructed to select and employ, whenever such action can be initiated without increase of membership dues, a full-time business manager, not a member of the executive committee, who shall carry on, under the direction of the committee, the secretarial and editorial work of the association and such other work as in the committee's opinion properly may be assigned to him; and the committee is further empowered and instructed to fix and establish headquarters at which such work shall be performed."

Journal on Paleontology

Another resolution was passed at this morning's business session authorizing the committee to publish a quarterly journal devoted to paleontology, the conditions regarding expense being the same as those incorporated in the previous resolution. It was pointed out that a large amount of data on various problems of the paleontologist is available for publication and a separate medium is necessary because of the highly specialized character of the work.

A number of men especially interested in this branch of the profession met at a dinner given in the Adolphus Hotel Thursday night at which plans were outlined for the formation of an organization. The dinner was given by Frederick B. Plummer of Fort Worth and the guests included Dr. David White, Dr. L. W. Stevenson, Paul Applin, chief geologist of the Cosden Oil Co., Houston; Dr. C. E. Decker, University of Oklahoma; R. C. Moore, state geologist of Kansas; Charles Schuchert of Yale University; Julius Henderson of the University of Colorado; Jesse J. Galloway of Columbia University; Dr. E. B. Branson of the University of Missouri; W. M. Winston of Texas Christian University; H. V. Howe of the University of Louisiana, and F. L. Whitney of the University of Texas. A committee consisting of Mr. Plummer, Mr. Whitney and Mrs. Paul Applin were appointed to list members of the association who are especially interested in micropaleontology and to effect means for more extensive publication of papers dealing with this subject.

Delegates of the American Association to the International Geological Congress to be held in Madrid, Spain, in May of this year were named at the Saturday morning session by President DeGolyer. They are F. O. Marin, Joseph T. Singewald, W. E. Wrather, C. R. Thomas, E. H. Sellards and Sidney Powers.

One of the outstanding characteristics of all conventions of the American Association of Petroleum Geologists is the attention paid to business in the midst of unlimited entertainment, and the large attendance at all technical sessions. Even speakers who presented their papers Thursday night and those who appeared on the program as late as 5 o'clock this afternoon after the election of officers had practically concluded the great convention, spoke to audiences which were numbered by the hundreds. And this was all the more remarkable this afternoon because the paleontologists were having a separate meeting of their own in another part of the Baker Hotel. Due to the strictly business like methods with which President DeGolyer conducted the sessions, everything went off like clockwork and the close of each session found the scheduled papers presented. When this morning's meeting was called to order only four papers which were on the program for Friday remained to be given and these were disposed of while the ballots for the new officers were being counted. A feature of this session which did not appear on the program was a song by R. B. Whitehead composed and sung and played by himself entitled "All About Dallas." Efforts to persuade Mr. Whitehead to sing his famous song "When They Struck Oil on My Daddy's Farm," were unavailing, however, so the convention can not be called a complete success.

At the close of the convention this afternoon an engraved loving cup was presented by Max Ball, then presiding for President DeGolyer, to the Baker Hotel management as an expression of appreciation from the association for the excellent service and many favors enjoyed by the guests during the three days of the convention. The hotel had been literally turned over to the geologists. Resolutions of appreciation to the local committee and particularly to Bob Whitehead as chairman, were enthusiastically adopted. No official action was necessary to thank Chester A. Hammill, consulting geologist of Dallas and member of the registration committee for his liberal distribution of refreshments during the Saturday morning meeting and for his many services in the convention hall. The unanimous enjoyment of the refreshments was enough. It is officially announced, however, that Chester donned his coat at the close of the convention.

The annual report presented by Dr. C. E. Decker, secretary-treasurer of the association, showed that on March 20, 1926, the membership numbered 1,504 and the resources were $26,600.18.

Plenty of Entertainment

A minstrel show provided hilarious entertainment following the annual banquet of the geologists. Every performer in the minstrel show and every musician in the "Sympathy" orchestra was a member of the Association and the list includes State geologists and chiefs of some of the largest companies in the country. R. B. Whitehead, the versatile entertainer, not only led his minstrels to victory but sang a new geological version of "That Certain Party of Mine," and then fittingly introduced Prof. J. Elmer Thomas of Cowtown, who conducted (or misconducted) the "Sympathy" orchestra. The house went wild, however, when the Professor elaborated his "conducting" with a few fancy flourishes of the Charleston.

If any attempt were made to mention special features of the program which brought tremendous applause, the above list of characters would simply have to be reproduced. The end men, Nowlan, Truex, Perini and Tommy Thompson, did their stuff in professional style and the orchestra didn't need any sympathy. For an aggregation assembled at the convention and able to practice together only a few days, they did remarkably well and put out some real music.

The banquet which preceded the minstrel show was held on the roof of the Baker Hotel and was attended by 1,100 former collegians who yelled for their various Alma Maters with all the enthusiasm of their undergraduate days. Alumni of each school were seated together and "razzed" each other just as they did in the good old days. Special stunts were staged by Oklahoma, Kansas, Chicago and other schools, while Mis-

(Continued on Page 149)

MEXICO'S OIL REGULATIONS ISSUED WITHOUT MODIFYING VITAL CLAUSES

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Mar. 30.—Regulations concerning Mexico's alien land laws were issued yesterday in Mexico City in the official gazette and follow the law absolutely without modifying the clauses which were objected to by foreign governments. American oil company representatives have not yet returned to New York from Mexican conferences. Advices from Mexico City indicate the conferences have not served to change materially the provisions of the petroleum regulations which are due to be promulgated any day. C. O. Swain made the following statement in Mexico City: "The discussions have closed after a full and frank exchange of points of view. The oil companies now await the issuance of the regulations according to the determination of the executive power.

WASHINGTON NOT ADVISED

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 30.—The State Department has not received official information concerning the oil regulations agreed to by Mexico. They are unable to determine whether these regulations are drawn to avoid in fact any injury to American oil companies as asserted by the Mexican Government.

The alleged Mexican land deal for turning over to Japanese citizens millions of acres for oil exploitation in Lower California is exciting widespread comment in the Senate, but the statement by Ambassador Tellez of Mexico that this report is perfectly absurd is causing Senators to refrain from comment until the facts become known.

SOME OF THE EARLY ARRIVALS AT THE GEOLOGISTS' CONVENTION

Top row, left to right: Henry G. Schneider, R. S. McFarland, Dr. C. E. Decker, K. C. Heald, Earl Trager, W. van der Gracht, Dr. David White, W. E. Wrather. Bottom row: Doctor Crider, Dr. W. T. Thom, Jr., W. B. Wilson, W. R. Hamilton, James H. Gardner.

Long-Lived Panhandle Field Forecast

American Association of Petroleum Geologists Hears Paper on Oil and Gas Fields of the Texas Panhandle

By C. Max Bauer*
The Midwest Refining Co.

The Texas Panhandle has attracted renewed interest of the oil industry because of the bringing in of several large wells in the district which seemed to indicate the presence of a widespread area of oil production, comparable in size in some degree to the known gas area in that region.

Conservative Estimates

A search for surface geology which would explain the presence of oil, has been largely fruitless, although it is granted that the first gas well was located on geological advice, on a large dome which can be mapped from surface exposures. However, the great size of the structural features which control the accumulation of gas and oil in this region has been baffling to many operators, and the tendency has been towards conservative estimates of the field, if not towards pessimism. The hypothesis put forth, that the structure in this region is due to the compacting of sediments over buried hills, or islands of crystalline rock, forming a more or less continuous chain, running northwestward from the Wichita Mountains for 100 miles or more, is now an accepted fact. The suggestion was made by T. S. Harrison in his article on "Porphyry at Amarillo" (Bull. Amer. Assoc. Pet. Geol. Vol. VII, No. 4, pp 434-439, 1923), that the doming or folding in the Panhandle was caused by intrusions of Permian or Pennsylvania age, is untenable, in view of the evidence which we have at the present time.

Many kinds of rock have been found along the crest of this buried chain; ranging from igneous, felsites, trachites, and diorites to metamorphic schists, gneisses, serpentine and marble. So that, in the writer's opinion, the series is doubtless Pre-Cambrian age which was elevated in early Paleozoic time, and existed as an archipelago in the early Permian Sea. The lack of evidence of diastrophism in this general region since Permian time is well known, and the formation of structure is similar to that which is found along the Nemaha Mountains in eastern Kansas, rather than structure like that in the Rocky Mountains. The Permian Salt basin of Western Kansas, Western Texas and Eastern New Mexico extends over this area. Such folding as has taken place since Permian time is only evidenced by the absence of Dakota and Comanchean strata from the vicinity of the Panhandle anticline.

Extended Structure

In general terms, a large anticlinal structure extends from near the Oklahoma line in a northwestward direction across Wheeler, Gray, Carson and Potter Counties. This anticline carries gas along its crest throughout a distance of 90 miles or more. On the north flank oil has been found in these same strata. The formations producing gas and oil are of Permian age, and a typical well log for the district reveals the following groups of strata: The first 800 feet consists of red standstone, red shale and gypsum. From 800 to 1,800 feet there is a large amount of salt, interbedded with gypsum and red beds. From 1,800 to 2,100 feet, depending on the elevation of the location, there is red shale interbedded with thin limestome and anhydrite streaks, at which point the top of the big lime series is encountered. From 2,100 feet to approximately 2,900 feet, we have a series of limestone, shale, dolomite and anhydrite beds, lacking red color, being predominantly blue or gray or white. From 2,900 feet to about 3,075 feet we have a shale zone containing streaks of lime and anhydrite. At this point we encounter the granite wash, which lies in patches along the north flank of the structure but which is not present at a distance of 3 or 4 miles from the underlying Pre-Cambrian masses. Below this we have again a white limestone which may possibly be the equivalent of the Pennsylvania strata elsewhere.

The gas is found in the big lime series at a depth of from 2,400 to 2,900 feet in Southern Hutchinson County and at lesser depth in Potter and Carson Counties. The heaviest gas is usually found at about 2,700 or 2,800 feet. Likewise, this belt produces the largest oil wells when far enough from the axis of the major structure to be at the proper elevation.

Thus far, in the area of development, oil wells in the granite wash may be expected in a belt paralleling the structure where the big lime series is encountered at an elevation of from 1,250 to 1,100 feet above sea. Oil wells in the dolomite may be expected in a belt where the top of the big lime series is enountered at an elevation of 950 to 700 feet above sea. Between the contours of 1,100 and 950 feet is a zone where small oil wells may be obtained, but owing to the nature of the strata they are not sufficiently porous to produce large wells. Everywhere in the Carson-Hutchinson County Field water is obtained in porous strata when a sea level depth is obtained. In some cases water has been obtained in wells 20 feet above sea level, but never up to this time has permanent water been found in the field between this point and a depth of about 1,100 feet.

Stratigraphy

Formations exposed in the Panhandle district from the younger to the older are: Recent wind-blown sands and river alluvium; Tertiary sands and gravels, partly cemented with lime or gypsum, called caliche; Triassic sandstone, known as Trujillo, and a shale and sandstone formation called Tecovas. Below this we have the Permian Quartermaster, red shale, and sand, near the top of which is found the Alibates dolomite. Below this the Cloud Chief red beds with some gypsum and the Day Creek dolomite.

The surface of the high plains is underlain by 150 feet to 200 feet of sand and gravel of Pliocene Age. (Equus bones have been found in these strata and pronounced by J. W. Gidley of Pliocene age.) This material was spread out over the area in late Tertiary times by streams and has since been partially cemented with secondary lime or caliche. The lower part of this group of beds which is usually gravel is the main water bearing horizon of the high plains. This gravel carries eroded fragments of shells (gyrphea) from the Comanchean deposits which underlie it on the plains farther south and also farther north in the Oklahoma Panhandle. Along the Panhandle anticline the Comanchean and Dakota have not been found.

The valleys of the main streams such as the Canadian and North Fork of the Red River are entrenched or eroded through the Tertiary cover into the Triassic and Permian beneath. The Triassic is exposed in Potter County and Oldham County, and the Permian in Potter County and eastward. The thickness of the Triassic is about 150 feet, in Potter County, being thicker to the west, but along the Canadian River northeast of Potter County the Triassic is missing and it does not appear in any of the exposures in Carson, Gray or Wheeler Counties.

Two Large Domes

Two large domes, which can be located from surface exposures, are John Wray and Four Six, and have been mapped on the Alibates dolomite which lies near the top of the Permian. This dolomite consists of two beds separated by about 10 feet of red shale. The upper member is from 5 to 10 feet thick and the lower member from 1 to 2 feet thick. Its structure is complicated by slumping and flowage of the shales beneath it, but the larger structural features are well depicted by it at the surface. This member disappears beneath the surface along the Canadian Valley in eastern Hutchinson County and does not appear farther east. In Wheeler County, only the lower Quartermaster, Cloud Chief and Day Creek are at the surface and these are largely concealed beneath recent sand dunes and alluvium. The lower Quartermaster consists of alternating red sand and red shale, with thin streaks of gypsum. Its total thickness is about 300 feet. Below it the Cloud Chief is made up of about 500 feet of red shale, sand and fairly thick beds of gypsum or anhydrite. Below the Cloud Chief is the Day Creek dolomite which is exposed near Shamrock, and, while not traced by the writer, probably extends over a considerable area in Wheeler County.

The formations drilled through in the Four Six Dome are representative of strata along the crest of the anticline. They are as follows: Red beds, quicksand, sandstone and clay for the first 500 feet or so; then another red group 500 feet thick in which dolomite and gypsum are conspicuous; followed by red beds containing varying thicknesses of rock salt usually in several beds and aggregating as much as 300 feet in some cases; then red beds, with alternating thin layers of gypsum, anhydrite and limestone continues to a depth of 1,500 to 2,200 feet, below which the so-called "big limestone" is encountered.

The Big Lime

The big lime is in reality a group of limestone, anhydrite, and dolomite strata interbedded with light blue or pale green shale beds. The average thickness of this limestone is about 800 feet. However, it is thicker to the north and to the south of the anticline than it is

(Continued on Page 151)

*Before American Association of Petroleum Geologists, Dallas, Tex.

CHARLES K. FRANCIS NOW TECHNICAL EDITOR OF THE OIL AND GAS JOURNAL

Charles K. Francis, Ph. D., one of the outstanding petroleum technologists of the United States, has joined the staff of The Oil and Gas Journal and is now technical editor of this publication. In addition to having charge of the technical department of The Oil and Gas Journal, Doctor Francis will conduct a question and answer department for the benefit of refiners and others in the petroleum industry, taking up in detail and answering questions submitted relating to various problems of petroleum refining and natural gasoline manufacturing, especially as they involve matters of a technical nature.

Dr. C. K. Francis

With the very rapid development during the past year or two of improved processes, devices and methods employed especially in the manufacturing branches of the petroleum industry, there exists a most insistent need for a service such as will be rendered by The Oil and Gas Journal through Doctor Francis. Questions of a technical nature arise almost every day in connection with some problem in the refining of petroleum and Doctor Francis will deal with all these questions which are submitted to him, in a special department to be inaugurated in The Oil and Gas Journal.

Doctor Francis is president of the Oklahoma Section of the American Chemical Society and chairman of the executive committee in charge of the national convention of this organization in Tulsa next week. He came to Oklahoma in 1910, after a degree of Doctor of Philosophy had been conferred on him by the University of Missouri. He was a member of the faculty of Oklahoma A. and M. College at Stillwater for several years and established the first school in petroleum technology in the United States.

In 1917, Doctor Francis became chief chemist and technical superintendent of the refinery of Cosden & Co., at West Tulsa, the largest refinery in the Mid-Continent area. He continued with Cosden for several years, resigning to become vice president in charge of manufacturing for the Producers & Refiners Corp. During the past two years he has been engaged in consulting work, with headquarters in Tulsa.

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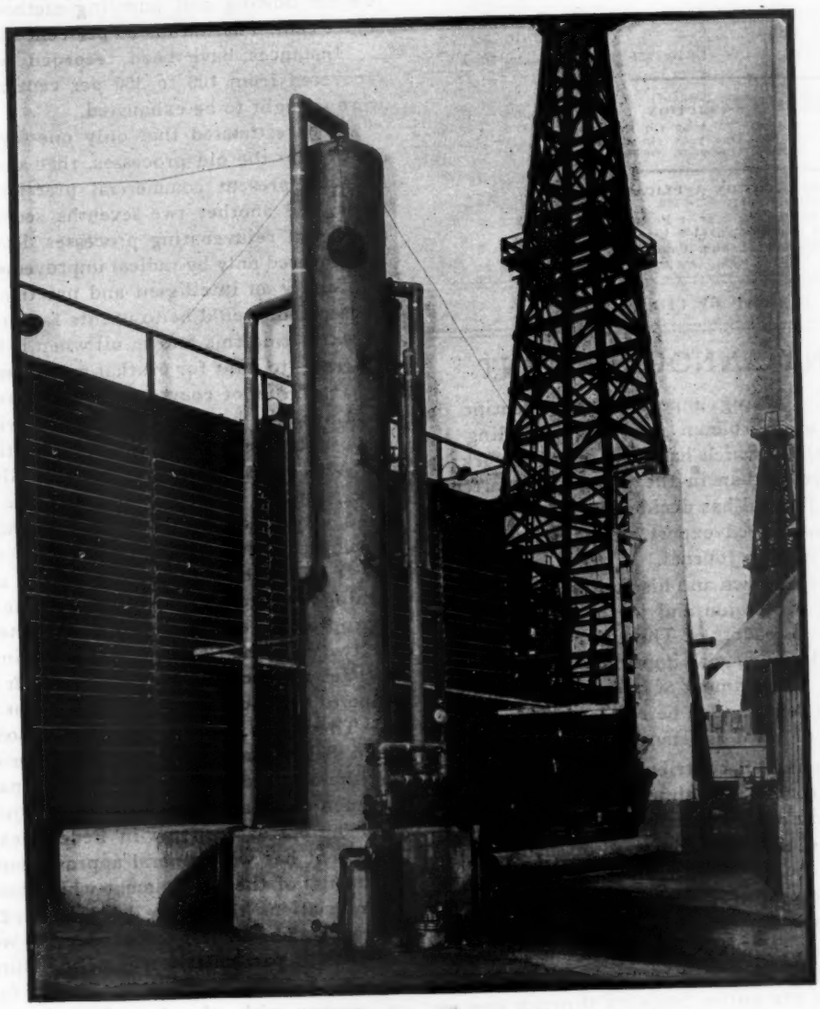

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AN IMPORTANT ANNOUNCEMENT

In recognition of the increasing importance of scientific development in the refining of petroleum products, including the manufacture of natural gasoline, which has made more remarkable progress in the past three years than in the preceding quarter of a century, The Oil and Gas Journal has decided to enlarge its staff by the addition of an acknowledged expert among refinery technologists as technical editor of The Journal.

Dr. C. K. Francis is so well known and his ability so universally recognized, both in his own profession and in the refining world, that the value of his services to readers of The Oil and Gas Journal will be instantly appreciated. Of special importance and practical value will be his direction of a department of questions and answers to which problems arising in refining can be referred. This feature alone will, we believe, prove of great assistance to refinery readers.

In addition Doctor Francis will contribute articles of general information to The Journal from time to time on subjects of timely interest to the petroleum industry. Written with the authority of years of study and experience, they will command attention.

Doctor Francis has been chosen to represent the Mid-Continent in so many of the most important technical committees on petroleum matters—he was for years a member of Committee D-2 of the American Society for Testing Materials and took an important part in revising the specifications of petroleum products—that he is familiar with the needs of the entire industry through contact with refining experts from all sections.

The advantages to readers of The Oil and Gas Journal of having the rapidly moving developments in the manufacture of petroleum products interpreted by a scientist of the standing of Doctor Francis are at once obvious, particularly so when it is believed that the improvements in refining practice in the next two or three years will prove even more far reaching.

The necessity and importance of enabling the industry to keep pace with this development which, as has been seen, vitally affects the entire oil business from production to marketing, is thoroughly understood by readers of The Oil and Gas Journal who have been kept informed of the trend and are assured of an authoritative interpretation of that continuing movement as it develops.

A BIRD IN THE HAND

In all the discussion of the need and plans for a naval oil reserve as an essential for our national defense the Government never appears to have thought of the pithy proverb that "a bird in the hand is worth two in the bush."

It has gone out of its way to set aside certain areas supposed to contain petroleum as naval oil reserves, in the case of Teapot Dome, only to find that the drill utterly failed to disclose any appreciable faction of the immense deposits of oil that had been estimated there.

Instead of setting aside a reserve of oil it has merely gambled that oil would be found in the quantity needed in the area reserved for exploration.

And all the time there was and is a known reserve of oil in known fields capable of producing a barrel for every barrel of oil that has ever been brought to the surface.

It was stated at the public hearings before the Federal Oil Conservation Board that the average recovery of oil from wells by the present flowing and pumping methods has been between 10 and 20 per cent. That means 80 per cent of the oil is left in the ground.

Instances have been recorded where special processes have recovered from 100 to 300 per cent more oil from old fields that were thought to be exhausted.

It is estimated that only one-seventh of the oil has been recovered by the old processes, that another one-seventh seems possible by present commercial practices for rejuvenating depleted fields, and another two-sevenths seems possible by improvements in present rejuvenating processes, leaving three-sevenths that can be recovered only by radical improvements over methods now in use.

Surely an intelligent and practical petroleum program for the Government would be to use its facilities in aiding to devise means for extracting this known oil when it is needed rather than staking out tracts to hunt for oil that may or may not be there.

It is true, of course, that the petroleum experts of the Bureau of Mines have been doing their best with the limited funds at their disposal but they have labored under that constant handicap.

A Congress that could become wildly excited over an oil lease as a campaign sensation would not be expected to be much interested in providing funds for scientific inquiry designed to really develop the nation's resources by practical means.

It would be difficult to imagine a senator from Montana returning home to ask re-election because he had the Bureau of Mines appropriation enlarged to promote the study of means to recover the two and a half billions of oil left in the Bradford fields.

Yet the recovery of even one-fifth of that would be of greater value to the country than all the oil in the so-called naval reserves.

There is a reserve of real oil—something tangible to depend upon. Setting aside unknown areas for drilling in the hope of finding the oil needed seems silly in comparison judged by any test of common sense and ordinary business judgment.

The era of economy in Federal expenditures directed by the President has won general approval but there are constructive departments of the Government which have long needed much larger appropriations than have been allotted them considering the importance and value of the productive work they are doing.

This is particularly true of the Bureau of Mines division dealing with petroleum, which has felt the force of the wave of economy in common with other branches of the administration although it had too little support to begin with.

It is notorious that this bureau, whose work has been of incalculable value in the production and practical conservation of our oil and gas resources, has had to struggle along with an appropriation that is insignificant compared with the sums necessarily expended by an average oil producing company on work of like character.

One of the most practical steps towards assuring a real reserve of oil as distinguished from a "naval oil reserve" would be a sufficient appropriation for the petroleum division of the Bureau of Mines that would enable it to prosecute its studies for the recovery of the vast accumulation of oil in abandoned fields, oil that we know is there, awaiting our knowledge of means to recover it.

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COUPLINGS - DOMINATE

Oklahoma Gusher Center of Interest

Largest Producer of High Gravity Oil Ever Gauged in Mid-Continent Features Past Week's Field Activities

Completion by the Sinclair Oil & Gas Co. of a well in the Garber Field in Oklahoma which started flowing at the rate of 1,000 bbls. an hour of crude testing between 45 and 47 degrees Baume, and which actually gauged 25,867 bbls. during the 24-hour period ending Monday morning of this week, was the outstanding feature of field operations in the United States during the past week. When it is considered the production of this well, at the posted price of crude, was worth $69,000 a day and that many of the major pools of the whole country do not produce as much as does this one well, regardless of gravity, its importance, not only to the owners, but to the general petroleum situation is evident. For the 24 hours ending Tuesday morning, this week, the well gauged 24,487 bbls.

The Boling Dome Field in the Gulf Coast may prove somewhat disappointing, while an interesting development in the Cole Gas Field in Southwest Texas is the fact a recent gusher there, after filling all available storage, was shut in for a time and, when opened up, made only gas. Operators in California are still interested in a deeper producing horizon at Inglewood.

Oklahoma

The completion of the Sinclair well, mentioned above, focussed attention of oil men through the state. Some operators feel the big well is located on the south side of a fault. The gusher struck the pay considerably higher than offset wells. D. W. Franchot's well, not of the gusher, made only 400 bbls. daily when completed some time ago, while a west offset, the Sinclair's No. 30 Walker, made 1,290 bbls. in 24 hours, but will be drilled deeper. The Wewoka deep sand area is attracting nearly as much attention as the Garber Field. The Homa-Okla Oil Co.'s No. 2 Carolina there, when drilled 1 foot deeper, increased its flow from 1,500 bbls. to 3,100 bbls., and some predict a peak for the field of 30,000 bbls. Interest in Logan County was intensified by the discovery of a big gas flow in a test in that section.

Kansas

Development of the Sumner-Padgett area in Kansas is expected to be stimulated as the result of a test completed by the Phillips Petroleum Co. on the Sumner-Cowley County line which made 425 bbls. the first 24 hours and 460 bbls. the next, making it the largest producer in that area.

Louisiana-Arkansas

The Urania and Lisbon Pools continue as the most active areas in this territory. The Atlantic Oil Producing Co. completed a 4-inch line to Lisbon, making the fourth pipe line to that field. The field had the best week in its history, while Urania celebrated its first anniversary by the completion of a 400-bbl. well. While the number of wells completed at Urania was less than during the previous week, the initial output was greater. Deep tests in Pine Island are reaching an interesting depth. Flood conditions in a large part of the area hampered operations to some extent, but both drilling operations and production showed an increase, despite the handicap of high water and bad roads.

New Mexico

A rank wildcat on the Baish permit, southeastern New Mexico, drilled by the Maljamar Oil & Gas Co., is gauging 10,000,000 feet of gas and spraying oil and may mean the opening of a new productive area. It is in the Mescalero sands, 4 miles west of the caprock.

Kentucky-Tennessee

In the Heidelberg area of Lee County, Kentucky, Tinker, Perdue and others had a well making 100 bbls. flush. Leeper Oil Co. found a producer in the Owensboro district which made 60 bbls. in 12 hours. In the new Lecta Pool of Barren County, a second well made 50 bbls. The total production of the field was 328 bbls. from 16 producers out of 28 completions.

Pennsylvania-West Virginia

Exceptionally good gas wells found in Guernsey County, Ohio, were the feature of the Eastern Fields. They are in the Niagara lime and while the drilling is expensive the good wells have stimulated much activity. The E. H. Everett Co. had a 120-bbl. well in Licking County. Wildcatting is being limited mostly to gas fields, the oil operators confining themselves to seeking new production in defined territory.

Central West

Hope of an extension of the Allendale Field of Wabash County, Illinois, over into Indiana was disappointed when a well in Knox County passed through both the Biehl and Jordan sands without finding anything. The Max Oil Co. got an 85-bbl. producer in the Allendale Field, passing through three sands.

Michigan

The Saginaw Prospecting Co. is putting down two more wells in the Saginaw district, the Bliss Petroleum Co. two, and the Sun Oil Co. one. Twenty-three applications for leases were filed by the Ohio Fuel Gas Co. The locations extend into three townships.

Rocky Mountain Area

The lifting of proration in the Sunburst Field, Montana, has resulted in some surprises. Some of the wells that came in at 1,000 bbls. and dropped to nominal when attempted to shut in have returned to gusher proportions with the opening of the wells in the field. A new area, the Aloe district, 12 miles southwest of Sunburst Field, is being tested It has never been drilled.

The Union Oil Co. of California has completed its survey of the Fort Collins Field in Colorado and estimates the area of the Fort Collins Field at 500 acres and of the Wellington Dome at 2,000 acres.

The Midwest Refining Co. and Utah Southern Co. well on Cane Creek, near Moab, Utah, has been cleaned out and has been waiting for cement to set to resume drilling.

Wyoming Associated got two good Lakota sand wells in Salt Creek, one for 2,167 bbls. and one for 1,802 bbls.

California

Long Beach decline continues consistently but interest centers on the deep test of United Oil Co. and California Petroleum Corp.'s No. 1 Bixby.

There is some concern also about an extension of deep drilling at Inglewood where there might easily be an increase in light oil output.

The Pacific Oil Co. completed a well flowing 1,060 bbls. of 25.4 oil at Maricopa, and the Chanslor-Canfield Midway Co., a well flowing 626 bbls. of 22.3 oil at Torrance, a producer making as much as the combined output of the five completions in that field in February.

The Associated Oil Co. extended the Ventura Avenue Field 3,000 feet east with a 1,500-bbl. producer making 35 gravity crude.

North Texas

Negotiations are reported for the purchase by the Magnolia Petroleum Co. of the Church and Fields' interest in Crane County. The Church and Fields' well is estimated good for 250 bbls. from the present depth.

Gwinnup and associates' No. 2 Dibrell, in northeastern Coleman County is proving better than the discovery well. It made 100 bbls. in the first 12 hours' test and is increasing daily, making 385 bbls. at latest report.

Several good completions were reported from northern Brown County.

Southwest Texas

Cole Petroleum Co.'s No. 17 Benavides, in the Cole Gas Field in Duval County, a quarter of a mile south of the Cin-Te Petroleum Co.'s No. 1, which came in flowing 25 bbls. an hour, suddenly increased to a big volume and was closed down for storage but when opened it made only gas.

In the Piedras Pintas salt dome, in Duval County, Humble Oil Co.'s No. 5 and Seagrave and Moody and W. F. Morgan's No. 1 should be ready to test the 3,623-foot sand of the discovery well by the last of this week or early next week.

Three deep tests are to be drilled by the Pittsburgh Oil Development Co. (Benedum & Trees) in Jim Hogg County. Kistelman and St. Albans have made arrangements for four deep tests off to the northeast of the Henne Winch and Fariss Pool wells.

The Texas Company has set casing in No. 2 in the old Jennings Gas Field in Zapata County, regarded as one of the most important tests in south Texas. There was a gas blow out in the previous deep test last November.

Gulf Coast

The future of the Boling Dome in Wharton County does not look as promising as a month ago. Much of the territory that looked good has either been condemned or its prospects dimmed. Operators are at sea as to subsurface conditions, encountering problems new to the Coastal region. During the week the dome area was extended about a mile northwest from production when Nelms and others went into dome formation in No. 1 Bey at 928 feet, and abandoned the hole. It is now thought the trend veers to the west and, if so, much high-priced acreage will be practically condemned.

The tornado that struck the Orange Pool did about $500,000 damage to the field, about 200 derricks being demolished. Wires supplying the current for operations were blown down. The storm caused the loss of about two days' production.

A third well within 10 days in the Lockport area of Calcasieu Parish, Louisania, flowing 3,300 bbls. initial and making 2,500 bbls. of 24.3 oil, 7 per cent salt water and sediment, was completed by the Vacuum-Gulf companies.

The Republic Production-Houston Oil Co.'s joint No. 121 Dolbear on the east side of Hull Pool came in at 2,420 feet flowing 2,500 bbls. and increased to 5,000 bbls. per day pipe line oil. The location is in new territory on the 800-acre lease.

Texas Panhandle

Westex Oil Co. completed No. 1 J. A. Whittenberg in south Hutchinson County, with a flush production of 400 bbls. and No. 2, not yet completed, is flowing 350 bbls. and may be deepened. Sunny Jim Oil Co.'s well, making 200 bbls., will be given a shot. Several other wells are showing for good producers.

East Central Texas

Collington and others' No. 3 Clapp, on the Jewell survey, Cherokee County, which has set casing at 2,784 feet, is the most important test in East Central Texas at present.

Mexico

There were but eight completions in Mexican Fields and only one producer, making 150 bbls. The failures were all in the northern fields.

Canada

The total production of No. 4 Royalite, Turner Valley's naphtha gusher, since May 31 last, was 136,699 bbls. With return of spring there will be increased activity in that field, many unfinished tests being taken over, some of which have already resumed operations. McLeod's No. 2 is to be drilled deeper. No. 5 Royalite and Vulcan Oil's No. 1 are again drilling.

Late News From the Fields

OKLAHOMA

The Sinclair Oil & Gas Co.'s No. 27 Hartley, the big well in the Garber Field in Garfield County, made 24,487 bbls. for the 24 hours ending 7 a. m. Tuesday of this week. The west offset, Sinclair Oil & Gas Co.'s No. 30 Walker made 1,117 bbls. for the same period, and No. 34 Walker, SW cor. NW NE Section 13-22-4w, (a south offset to a 100-bbl. well,) made 2,535 bbls. from the Wilcox sand. The performance of these wells emphasize the peculiar characteristics of the deep sand at Garber.

In the Wewoka deep sand area the drilling deeper of three wells resulted in another increase in daily production. The daily yield of the five wells in this area follows:

Magnolia Petroleum Co., No. 1 Harjo	4,880
Magnolia Petroleum Co., No. 3 Frans	3,150
Ramsey, No. 4 Amos	2,760
Amerada, No. 1 Harjo	5,748
Total	19,783

Southwest of Okmulgee, in Tiger Flats, the new well of Keaton & Gold and M. P. Evans, SE cor. SW SE, Section 3-12-11, made 444 bbls. from a member of the Dutcher sand group found 2,606-12 feet with the first oil at 2,608 feet. The 80 acres on which the well was drilled (W half SE, Section 3-12-11) was sold to the Barnsdall Oil Co. for a cash consideration reported to be $250,000.

In the Deep Rock Pool the Deep Rock Oil Co.'s No. 5 Boyles, NE cor. SW SE, Section 23-18-3, had sand 4,175-4,241 feet with 35,000,000 feet of gas.

At Davenport, the Magnolia Petroleum Co.'s No. 1 Chapman, NW cor. SE, Section 10-14-5, had the sand 3,476-90 feet and flowed 32 bbls. It is standing with 2,800 feet of oil in the hole.

In the Beggs district, the Shaffer Oil & Refining Co.'s No. 7 Gibson, SW cor. SE SW, Section 17-15-11, had the Wilcox sand 2,943-53 feet and flowed 840 bbls. of 40-degree gravity oil.

GULF COAST

HOUSTON, Tex., Mar. 30.—The Republic Production-Houston Oil Co.'s joint No. 121 Dolbear, on the east side of the Hull Pool, came in at 2,420 feet flowing 2,500 bbls. and increased to 5,000 bbls. per day pipe line oil. The location is between old production and the edge of the dome in new territory on the 800-acre lease.

NORTH CENTRAL TEXAS

FORT WORTH, Tex., Mar. 30.—Gwinnup and associates have just about completed work on their No. 2 Dibrell in northeastern Coleman County. The well was reported several days ago to be making around 100 bbls. at that time and still increasing. At the latest reports the well is making an average of 385 bbls. daily in the sand at 1,885-1,903 feet. This is a much better well than the No. 1 or discovery well in this pool which had a flush of about 100 bbls.

(Continued on Page 130)

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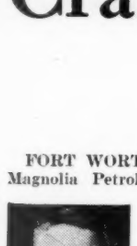
Crane County, Texas, Acreage in Deal

Church and Fields' Well Estimated at 250 Bbls. Coleman County Well Promises Better Than the Dibrell Discovery

By George R. Kelley



FORT WORTH, Tex., Mar. 29.—The Magnolia Petroleum Co. is negotiating for the purchase of the Church and Fields interests in the block of acreage and one well in northeastern Crane County. Details of the transaction have not been made public, though it is reported the price to be paid by the Magnolia company is somewhere between $300,000 and $400,000, a part of which is to be paid in cash and the balance in oil, as, if and when produced.

The property involved in the pending deal is on University lands in northeastern Crane County, about 15 miles north of the Independent Oil & Gas Co. and Turman & Maxwell well on the Leonard Taylor property. There is one well, known as the Church & Fields' No. 1 University and an undetermined amount of acreage, but several hundred acres of leases. The Church & Fields interests in the well is given as one-fourth, while Turman & Maxwell of Fort Worth own a one-fourth interest and the Comac Oil Co. a one-half interest. The deal with the Magnolia company is said to involve only the Church & Fields interest in the property.

The well is not yet completed, and naturally is still an unknown quantity. Pay formation was found at 3,029 feet and has been drilled into one foot. The well has been swabbing the last week and is reported showing both oil and water. It is considered very likely the water is coming from a leaky 8-inch casing which is set at 2,450 feet. Some well-informed oil men estimate the well will be good for around 250 bbls. at its present depth. It is probable further progress on it will be delayed until the consummation of the deal with the Magnolia company.

Gwinnup and associates' No. 2 Dibrell, in northeastern Coleman County, drilled as an offset to their discovery on the Dibrell, is showing up for a much better well than the discovery, according to late field reports. No. 2, reported last week as showing for a producer, got the pay sand at 1,894 feet and has been drilled eight feet into the sand. During the first 12 hour test it made 100 bbls. and is said to be increasing daily.

There are two more new producers in the northern Brown County Field, neither yet completed. The Gillespie Oil Co's. No. 1 Henson, is producing from the sand at 1,272 to 1,290 feet and is making 100 bbls. flush. Herring and others' No. 1 Prather, is also making 100 bbls. initial from the sand at 1,313-19 feet. This well was shot into production with 20 quarts of nitroglycerin.

In addition to these there were several good completions listed in northern Brown. The E. L. Smith Oil Co's. No. 1 Dunn has not yet been listed as a completion, but early in the week was reported making about 1,125 bbls. in the shallow sand. The Texas Company's No. 1 Dunn, has been completed as a 1,125 bbl. well at 1,127 feet. There were several unimportant completions, but Carter and others' No. 1 Church Lot, is a 100-bbl. well at 1,126 feet and the States Oil Corp's. No. 2-A Allen, is making 120 bbls. at 1,114 feet.

In the Electra district of Wichita County, Bullington and others' No. 15 Jennings, though not completed, is making 95 bbls. daily from the sand at 1,578-1,609 feet. Wichita County had a total of 32 completions this week, but many were shallow wells and very small producers, making less than 10 bbls. per well. Out of a total of 24 new producers in the county there was only 363 bbls. of new production.

Wilbarger County had 17 new completions, 15 of which were producers with 1,330 bbls. of new production, about 90 bbls. per well. The best completions were the Humble Oil & Refining Co's. No. 3-M Waggoner, making 250 bbls. at 1,905 feet, the Landreth Production Co's. making 200 bbls. at 2,582 feet, the Humble company's No. 4-O Waggoner, making 200 bbls. at 1,909 feet, and McCamey and others' No. 33 Stephens, making 195 bbls. at 1,268 feet.

In Archer County No. 5 Jeske, an uncompleted well of The Texas Company, is making 25 bbls. an hour from the sand at 1,140-50 feet. This indicates a better well than the company's No. 4 Jeske, completed about a week ago, rated as a 400-bbl. well. Burns and others' No. 1 Jackson, also in Archer County, reported a week ago as showing oil, has been tested and on a 20-hour gauge made 25 bbls. of oil from the sand at 1,555-59 feet.

Archer County had a total of 35 completions this week, of which 23 were oil wells, with 1,560 bbls. of new production. Among the better completions were Hill and others' No. 1 Hutcherson, making 205 bbls., the Texhoma Oil & Refining Co's. No. 7 Hamilton, making 140 bbls., Perkins and others' No. 12 Anderson, making 135 bbls., the Pioneer Refining Co's. No. 1 Wolf, making 200 bbls., and the Texhoma Oil & Refining Co.'s No. 5 Wolf, making 245 bbls.

Four new producers were recorded out of nine completions in Young County. The best completions were Bridwell and others' No. 2 Farmer, making 160 bbls. and the Prairie Oil & Gas Co's. No. 4 Boren, making 175 bbls..

Reagan County had one producer and one abandoned test. The new producer is the Big Lake Oil Co's. No. 62 University, which is making 520 bbls. from the lower pay.

Production this week showed a nice gain over the average daily for the previous week. This week's daily average is 170,560 bbls. against 163,940 for the week before, leaving a gain of 6,620 bbls. average daily. Stephens County gained about 2,000 bbls, Archer about 1,000 bbls., Brown County about 2,000 bbls., and Reagan County about 600 bbls.

This week showed a total of 131 completions compared with 103 for the week previous. There were 79 producers this week with 5,808 bbls. of new production, against 14,680 bbls. of new production last week from 62 new producers.

The following table gives the completions by counties, showing producers, dry holes, gas wells and amount of new production:

County	Comp.	Prod's.	Dry	Gas	New Prod.
Wichita	32	24	8	0	363
Wilbarger	17	15	2	0	1,330
Archer	35	23	12	0	1,560
Young	9	4	5	0	450
Stephens	3	2	1	0	75
Eastland	2	1	1	0	15
Callahan	3	1	2	0	30
Brown	10	8	2	0	1,465
Reagan	2	1	1	0	520
Moore	1	0	0	1	..**
Wheeler	1	0	1	0	.....
Baylor	2	0	2	0	.....
Clay	1	0	1	0	.....
Collin	1	0	1	0	.....
Throck'n	2	0	2	0	.....
Haskell	1	0	1	0	.....
Shackle'd	5	0	5	0	.....
Palo Pinto	1	0	1	0	.....
Coleman	3	0	3	0	.....
T'l this wk.	131	79	51	1	5,808
T'l last wk.	103	62	41	0	14,680
Difference	28	17	10	1	8,872

**One gas well was completed in Moore County making 56,000,000 feet of gas daily.

PRODUCTION REPORT
For week ending March 25

Burkburnett

Gulf Production Co.	465
Humble Oil & Refining Co.	350
Magnolia Petroleum Co.	2,600
Panhandle Refining Co.	255
Prairie Oil & Gas Co.	20
Sinclair Oil & Gas Co.	50
Skelly Oil Co.	155
Sun Co.	60
The Texas Company	365
Texhoma Oil & Refining Co.	595
Miscellaneous	7,700
Total	12,615

Electra

Atlantic Oil Producing Co.	50
Empire Gas & Fuel Co.	865
Gulf Production Co.	960
Humble Oil & Refining Co.	100
Magnolia Petroleum Co.	3,330
Panhandle Refining Co.	30
Phillips Petroleum Co.	15
Prairie Oil & Gas Co.	115
Rio Bravo Oil Co.	540
The Texas Company	3,465
Texhoma Oil & Refining Co.	1,580
Miscellaneous	6,050
Total	17,100

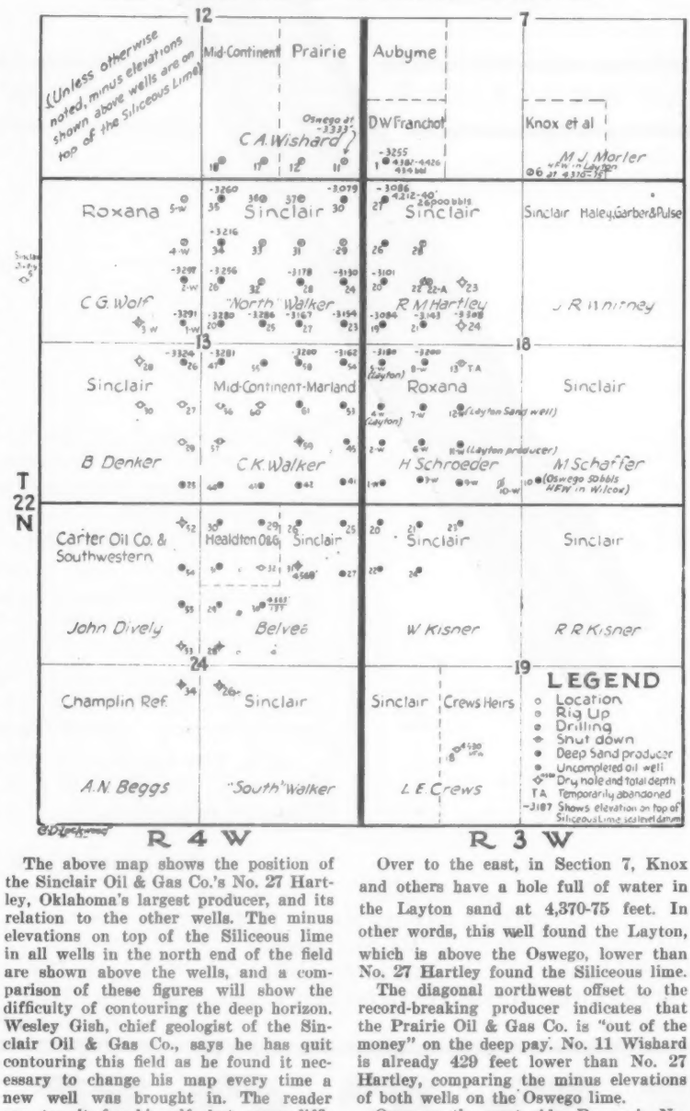
Iowa Park

Atlantic Oil Producing Co.	105
Gulf Production Co.	120
Humble Oil & Refining Co.	300
Magnolia Petroleum Co.	525
Panhandle Refining Co.	30
Roxana Petroleum Corp.	10
The Texas Co.	260
Texhoma Oil & Refining Co.	135
Miscellaneous	3,195
Total	4,580

Wilbarger County

Atlantic Oil Producing Co.	135
Gulf Production Co.	40
Humble Oil & Refining Co.	4,365
Landreth Production Co.	4,135
Prairie Oil & Gas Co.	50
Roxana Petroleum Corp.	555
The Texas Co.	55
Texhoma Oil & Refining Co.	115

DEEP SAND WELLS IN THE GARBER POOL



The above map shows the position of the Sinclair Oil & Gas Co.'s No. 27 Hartley, Oklahoma's largest producer, and its relation to the other wells. The minus elevations on top of the Siliceous lime in all wells in the north end of the field are shown above the wells, and a comparison of these figures will show the difficulty of contouring the deep horizon. Wesley Gish, chief geologist of the Sinclair Oil & Gas Co., says he has quit contouring this field as he found it necessary to change his map every time a new well was brought in. The reader can try it for himself, but some difficulty may be found. The difference in lime elevation between No. 19 Hartley and No. 27 Hartley is just 2 feet. The big well is also just 7 feet lower than No. 30 "North" Walker, but its north offset, Franchot's 400-bbl. well, is 169 feet lower than No. 27 Hartley.

Over to the east, in Section 7, Knox and others have a hole full of water in the Layton sand at 4,370-75 feet. In other words, this well found the Layton, which is above the Oswego, lower than No. 27 Hartley found the Siliceous lime.

The diagonal northwest offset to the record-breaking producer indicates that the Prairie Oil & Gas Co. is "out of the money" on the deep pay. No. 11 Wishard is already 429 feet lower than No. 27 Hartley, comparing the minus elevations of both wells on the Oswego lime.

Over on the west side, Roxana's No. 5-W Wolfe is running low compared with Sinclair's offset, a small producer, and is shut down at 3,850 feet.

On the map, No. 23 Hartley should be No. 25, and the lime elevation is minus 3,253 feet, top of lime being 4,-365 and total depth 4,465 feet.

Miscellaneous	5,645	
Total		15,085
Archer County		
Atlantic Oil Producing Co.	325	
Empire Gas & Fuel Co.	730	
Gulf Production Co.	2,465	
Humble Oil & Refining Co.	485	
Independent Oil & Gas Co.	15	
Magnolia Petroleum Co.	1,580	
Marland Oil Co.	670	
Panhandle Refining Co.	130	
Phillips Petroleum Co.	790	
Waite Phillips Co.	1,505	
Prairie Oil & Gas Co.	2,410	
Roxana Petroleum Corp.	395	
Simms Oil Co.	535	
Sun Co.	255	
The Texas Company	3,460	
Texhoma Oil & Refining Co.	3,685	
Tidal Oil Co.	60	
Miscellaneous	13,915	
Total		33,310
Stephens County		
Atlantic Oil Producing Co.	30	
Empire Gas & Fuel Co.	30	
Gulf Production Co.	1,375	
Humble Oil & Refining Co.	705	
Magnolia Petroleum Co.	375	
Mid-Kansas Oil & Gas Co.	8,450	
Phillips Petroleum Co.	40	
Prairie Oil & Gas Co.	910	
Republic Production Co.	125	
Roxana Petroleum Co.	50	
Simms Oil Co.	50	
Sinclair Oil & Gas Co.	70	
Sun Co.	140	
The Texas Co.	1,035	
Texas Pacific Coal & Oil Co.	1,150	
Miscellaneous	5,665	
Total		14,600
Ranger		
Gulf Production Co.	230	
Humble Oil & Refining Co.	40	
Magnolia Petroleum Co.	960	
Mid-Kansas Oil & Gas Co.	135	
Panhandle Refining Co.	115	
Prairie Oil & Gas Co.	625	
Republic Production Co.	40	
Sinclair Oil & Gas Co.	815	
The Texas Co.	145	
Texas Pacific Coal & Oil Co.	755	
Miscellaneous	2,195	
Total		5,555
Moran		
Empire Gas & Fuel Co.	30	
Humble Oil & Refining Co.	10	
Magnolia Petroleum Co.	85	
Phillips Petroleum Co.	735	
Prairie Oil & Gas Co.	25	
The Texas Company	225	
Texhoma Oil & Refining Co.	90	
Miscellaneous	1,650	
Total		2,850
Young County		
Gulf Production Co.	200	
Humble Oil & Refining Co.	360	
Magnolia Petroleum Co.	205	
Mid-Kansas Oil & Gas Co.	20	
Panhandle Refining Co.	135	
Prairie Oil & Gas Co.	10	
Roxana Petroleum Co.	140	
Simms Oil Co.	855	
Sinclair Oil & Gas Co.	365	
Sun Co.	65	
The Texas Company	505	
Texhoma Oil & Refining Co.	345	
Tidal Oil Co.	290	
Miscellaneous	3,815	
Total		7,310
Eastland-Comanche		
Empire Gas & Fuel Co.	10	
Humble Oil & Refining Co.	130	
Magnolia Petroleum Co.	665	
Mid-Kansas Oil & Gas Co.	175	
Phillips Petroleum Co.	40	
Prairie Oil & Gas Co.	110	
Simms Oil Co.	35	
Sinclair Oil & Gas Co.	20	
Skelly Oil Co.	115	
The Texas Co.	135	
Texas Pacific Coal & Oil Co.	85	
Miscellaneous	1,275	
Total		2,795
Panhandle		
Hutchinson County	5,510	
Carson County	1,985	
Gray County	635	
Wheeler County	135	
Total		8,265
Miscellaneous Pools		
Clay County	435	
Montague County	1,600	
Jack County	85	
Throckmorton County	165	
Baylor County	240	
Palo Pinto County	430	
Brown County	6,170	
Coleman County	335	
Callahan County	3,950	
Mitchell County	3,220	
Reagan County	29,545	
Scurry County	55	
Crockett County	205	
Upton County	60	
Total		46,495
Total this week		170,560
Total last week		163,940
Total		6,620

Wichita County Completions

B. C. M. & T. Oil Co's. No. 1 Willis, 3 bbls. at 183 feet; No. 2 Willis, 6 bbls. at 268 feet; No. 3, 8 bbls. at 270 feet; No. 4 Willis, 5 bbls. at 276 feet; No. 5 Willis, 7 bbls. at 266 feet; No. 6 Willis, 5 bbls. at 270 feet; No. 8 Willis, 3 bbls. at 268 feet; C. W. M. & T. Oil Co's. No. 1 Horton, 10 bbls. at 267 feet; No. 2 Horton, 5 bbls. at 261 feet; No. 3 Horton, 5 bbls. at 256 feet; No. 4 Horton, 7 bbls. at 260 feet; No. 5 Horton, 8 bbls. at 270 feet; No. 6 Horton, 9 bbls. at 269 feet; No. 7 Horton, 7 bbls. at 268 feet; No. 8 Horton, 6 bbls. at 269 feet; No. 9 Horton, 8 bbls. at 265 feet; Cooper and others' No. 15 Morgan, dry at 1,002 feet; Bridwell and others' No. 1 Waggoner Brothers, dry at 1,857 feet; Hooser and others' No. 2 Hines, dry at 1,416 feet; Maer and others' No. 1 Hines, dry at 2,023 feet; No. 15-A Pratt, 15 bbls. at 980 feet; No. 19-A Ramming, 20 bbls. at 1,295 feet; No. 18-B Ramming, 10 bbls. at 1,304 feet; O'Neil and others No. 1 Roberts, dry at 2,138 feet; Perkins and others' No. 7 Beaver Electra, dry at 1,950 feet; Petroleum Producers Co's. No. 19 Allen and Kemp, dry at 1,768 feet; No. 1 Hines, dry at 1,709 feet; Ryan Petroleum Co's. No. 54 Nance, 85 bbls. at 1,321 feet; No. 55 Nance, 25 bbls at 490 feet; No. 56 Nance, 65 bbls. at 1,322 feet; White Brothers' No. 1-B Mitchell, 35 bbls. at 1,522 feet.

Wilbarger County

Barkley and others' No. 2 Bond, dry; No. 6-B Stephens, 30 bbls. at 2,395 feet; Graham and others' No. 1 George, 15 bbls. of oil and 60 bbls. of water at 2,227 feet; Humble Oil & Refining Co's. No. 23 Castlebury, 30 bbls. at 1,669 feet; No. 42 Stephens, 50 bbls. at 2,400 feet; No. 43 Stephens, 60 bbls. at 2,406 feet; No. 3-M Waggoner, 250 bbls. at 1,905 feet; No. 3-O Waggoner, 35 bbls. at 1,908 feet; No. 4-O Waggoner, 200 bbls. at 1,909 feet; Landreth Production Co's. No. 2-I Waggoner, 200 bbls. at 2,582 feet; No. 3-CC Waggoner, 125 bbls. at 1,899 feet; McCamey and others' No. 8 Stephens, dry at 2,360 feet; No. 33 Stephens, 195 bbls. at 1,268 feet; Milham Corp's. No. 1-B Waggoner, 20 bbls. at 2,408 feet; No. 2-B Waggoner, 50 bbls. at 2,400 feet; Shamrock Oil Co's. No. 1-K Waggoner, 50 bbls. at 2,334 feet; No. 1-W Waggoner, 10 bbls. at 2,378 feet.

Archer County

Atlantic Oil Producing Co.'s No. 11-C Wilson, dry at 1,606 feet; Barkley and others' No. 22 Wilson, 75 bbls. at 1,530 feet; Burns and others' No. 3 Jackson, dry at 1,565 feet; No. 7 Brown, 45 bbls. at 1,587 feet; Creath and others' No. 1 Humphrey, dry at 1,700 feet; Harris and others' No. 1 Dycus, dry at 1,520 feet; Hill and others' No. 1 Hutcherson, 205 bbls. at 1,396 feet; No. 5 Hutcherson, 30 bbls. of oil and 40 bbls. of water at 1,399 feet; McCarty Oil Co's. No. 21-B Wilson, 45 bbls. at 910 feet; Pandem Oil Corp's. No. 8 Hutcherson, 35 bbls. at 1,402 feet; Ramming and others' No. 1 Parrish, dry at 1,611 feet; R. M. F. Oil Corp's. No. 1 Wilson, dry at 1,581 feet; Staley and others' No. 7-B Parrish, 70 bbls. at 1,583 feet; Shasta Oil Co's. No. 1 Mangold, 5 bbls. at 663 feet; No. 2 Mangold, 10 bbls. at 657 feet; No. 3 Mangold, 10 bbls. at 656 feet; No. 4 Mangold, 15 bbls. at 657 feet; No. 5 Mangold, 10 bbls. at 657 feet; No. 7 Mangold, 10 bbls. at 656 feet; Texhoma Oil & Refining Co's. No. 7 Hamilton, 140 bbls. at 1,811 feet; Whitman and others' No. 1 Britton, dry at 1,809 feet; Young and others' No. 2 Abney, 25 bbls. at 1,757 feet; Fisher and others' No. 8 Rogers, 50 bbls. at 1,370 feet; Hammond and others' No. 1 Neal, dry at 1,215 feet; Magnolia Petroleum Co's. No. 9 Portwood, 15 bbls. at 1,415 feet; Meyers and others' No. 1 McMurtry, dry at 1,055 feet; Pandem Oil Corp's. No. 12 fee, 75 bbls. at 1,450 feet; Perkins and others' No. 12 Anderson, 135 bbls. at 1,429 feet; Pioneer Refining Co's. No. 1 Wolf, 200 bbls. at 1,356 feet; Primrose Petroleum Co's. No. 6 Wolf, 100 bbls. at 1,370 feet; Shaw and others' No. 6-A Hayter, dry at 1,352 feet; No. 1-D Hausler, dry at 1,250 feet; Spoonts and others' No. 1 Megargel School, dry at 1,500 feet; Texhoma Oil & Refining Co's. No. 5 Wolf, 245 bbls. at 1,350 feet; No. 2-A Wolf, 10 bbls. at 1,067 feet.

Young County

Beavers and others' No. 1 Teague, dry at 1,002 feet; Bridwell and others' No. 2 Farmer, 160 bbls. at 1,073 feet; Carter and others' No. 3 Benson, 80 bbls. at 928 feet; Hoyle and others' No. 1 Benson, dry at 1,206 feet; Hoffer Oil Corp's. No. 1 Boyd, dry at 1,204 feet; McElreath and others' No. 1 Freeman, dry at 1,125 feet; Prairie Oil & Gas Co's. No. 4 Boren, 175 bbls. at 1,072 feet; Roxana Petroleum Corp's. No. 1 Neeley, dry at 1,176 feet; Tidal Oil Co's. No. 1 Benson, 35 bbls. at 924 feet.

Stephens County

Humble Oil & Refining Co's. No. 5 Smith, 5 bbls. at 1,725 feet; Landreth Production Co's. No. 3 Gratz, 70 bbls. at 3,236 feet; States Oil Corp's. No. 2 Hawkins, dry at 3,865 feet.

Eastland County

Bateman and others' No. 1 Motes, 15 bbls. at 3,204 feet; Cranfill and others' No. 1 Collins, dry at 1,482 feet.

Callahan County

Kirk and others' No. 1 Harlow, dry at 1,830 feet; Southern Petroleum Exploration Co's. No. 1 Smart, dry at 2,470 feet; Wakefield and others' No. 1 Derrington, 30 bbls. at 1,418 feet.

Brown County

Carter and others' No. 1 Church lot, 100 bbls. at 1,126 feet; Cosden and others' No. 9 Gafford, 15 bbls. at 1,256 feet; Danciger and others' No. 2 Eddington, 15 bbls. at 1,267 feet; Dozier and others' No. 2 Byrd, dry at 1,530 feet; McLester Oil Co's. No. 5 Clark, 50 bbls. at 1,224 feet; Mahlstedt Oil Co's. No. 1 Eddington, dry at 1,278 feet; Schaffner and others' No. 7 Prather, 5 bbls. at 1,313 feet; States Oil Corp's. No. 2-A Allen, 120 bbls. at 1,114 feet; Stone and others' No. 6 Gunn, 35 bbls. at 1,219 feet; The Texas Co's. No. 1 Dunn, 1,125 bbls. at 1,127 feet.

Reagan County

Big Lake Oil Co's. No. 62 University, 520 bbls. at 2,934 feet; Peer Oil Corp.'s No. 1 Sawyer, dry at 2,711 feet.

Moore County

Amarillo Oil Co's. No. 2-A Masterson, 56,000,000 feet of gas at 2,545 feet.

Wheeler County

Midwest Exploration Co's. No. 1 Company, dry at 2,985 feet.

Baylor County

Roxana Petroleum Corp's No. 1 Alexander, dry at 1,651 feet: Magnolia Petroleum Co's. No. 4 Portwood, dry at 2,090 feet.

Clay County

The Texas Co's. No. 4 Jones, dry at 1,010 feet.

Collin County

Heartwell Syndicate's No. 1 Anderson, dry at 3,004 feet.

Throckmorton County

Murchison and others' No. 1 Portwood, dry at 1,351 feet; Texhoma Oil & Refining Co.'s No. 3 Reynolds, dry at 3,443 feet.

Haskell County

Adams and others' No. 1 Proctor, plugged at 2,750 feet.

Shackelford County

Hoffman and others' Moberly, dry at 1,360 feet; Hope Petroleum Co's. No. 1 Newell, dry at 2,530 feet; Riley and others' No. 1 Elliott, dry at 1,580 feet; Spoonts and others' No. 2 Poindexter, dry at 602 feet; The Texas Co's. No. 1 Green, dry at 1,880 feet.

Palo Pinto County

Ochiltree and others' No. 1 Hinkson, dry at 676 feet.

Coleman County

Cranfill and others' No 1 Parsons, dry at 700 feet; Moore and others' No. 1 Sackett, dry at 1,950 feet; Pandem Oil Corp's. No. 1 Mitchell, dry at 1,604 feet.

Wichita County Drilling

Cozy Oil Co.'s No. 11 Warren, drilling at 1,380 feet; Magnolia Petroleum Co.'s No. 128 Reilly, 1,300 feet; Jeffers and others' No. 1 Harrel, 1,480 feet; Armstrong and others' No. 1 McCormick, 1,400 feet; Culberson Co.'s No. 36 Waggoner Brothers, 1,340 feet; Culberson and Hunter's No. 2 Waggoner, 1,110 feet; Humble Oil & Refining Co.'s No. 1-D Waggoner, 1,184 feet; Magnolia Petroleum Co.'s No. 3-A Maer, 1,104 feet; Plummer and others' No. 7 Chilson, 685 feet; Staley and others' No. 3 Hines, 700 feet; Texhoma Oil & Refining Co.'s No. 16 Waggoner Brothers, 893 feet;

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TEXAS PANHANDLE HAS GOOD WELLS IN SOUTH HUTCHINSON COUNTY AREA

By George R. Kelley

AMARILLO, Tex., Mar. 27.—The principal events of importance in the Panhandle Field the past week were the two wells of the Westex Oil Co. on the J. A. Whittenburg lease in the south Hutchinson County district. No. 1 has been completed with a daily flush production of 400 bbls. from the regulation south Hutchinson depth. Total depth of the well is 2,951 feet.

While No. 2 has not been completed it is flowing at the rate of 350 bbls. daily average at a total depth of 2,952 feet. It is reported this well is to be given a shot in an effort to increase its production.

The Westex Oil Co. is a local concern organized recently and composed almost entirely of Amarillo business men. J. Ray of this city is president.

Another good well reported this week from the south Hutchinson area is the Sunny Jim Oil Co.'s No. 1 J. A. Whittenburg. It is not completed and will be given a shot to increase the production. At present it is making 200 bbls. daily from a depth of 2,952 feet.

The Gulf Production Co.'s No. 1 Cockrell is showing for a good producer from the regulation producing depth and formation. It is flowing and spraying about 7 bbls. an hour with about 200 feet of cavings in the bottom of the hole. Drillers are engaged in cleaning out the hole.

The No. 1 J. A. Whittenburg of the Phillips Petroleum Co. and the Gibson Oil Corp. has been given a shot and is now swabbing. It was shot with 90 quarts of nitro at 2,895-2,932 feet and is now swabbing 100 bbls. daily.

Not satisfied with the production of its No. 1 J. A. Whittenburg, which has been flowing an average of 400 bbls. a day for more than a week, the Summit Oil Co. is reported making plans for drilling the well deeper.

Skelly Oil Co. also has a good producer in its No. 1 J. A. Whittenburg. The well has reached a total depth of only 2,934 feet and on a 12-hour test flowed 80 bbls. It will be drilled deeper, with the expectation of very materially increasing its output.

Another well showing for good production is the Travelers Oil Co.'s No. 1 Kingsland, which is spraying and flowing at the rate of 85 bbls. daily. The well is 2,930 feet and will be given a shot.

The Phillips Petroleum Co.'s No. 1 Weatherly has been shot with 90 quarts of nitro at a depth of 3,040-65 feet and is making between 20 and 30 bbls. daily.

Dunnigan and others' No. 1 J. A. Whittenburg is stand 2,500 feet in oil at a depth of 2,988 feet. The hole is caving badly which is materially affecting the production of the well.

The No. 2 J. A. Whittenburg of the Phillips Petroleum Co. and the South Hutchinson Oil Co. is showing for a producer. The hole is standing 1,000 feet in oil at a depth of 2,925 feet. Deeper drilling is expected to result in considerably increased production.

The American Refining Co.'s No. 1 J. A. Whittenburg is making a total of 4,000,000 feet of gas daily and showing considerable oil at a total depth of 2,808 feet. At present the well is being cleaned out preparatory for a shot.

The White Eagle Oil & Refining Co.'s No. 1 Smith is showing 6,000,000 feet of gas and drilling ahead at 2,730 feet Ramsey and others' No. 1 Johnson is drilling ahead at 2,392 feet and making 20,00,000 feet of gas. The Phillips Petroleum Co.'s No. 1 J. A. Whittenburg is making 15,000,000 feet of gas and drilling at 2,890 feet, while the No. 1 J. A. Whittenburg of the Phillips Petroleum Co. and McMillen is showing oil at a depth of 2,865 feet while drilling is being continued.

Middleton and others have completed their No. 2 Weatherly as a gas well making 2,000,000 feet daily from 2,808-35 feet. The Newby Oil Co.'s No.

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DORECO
LOW PRESSURE GAS BURNER
THE
NATIONAL SUPPLY
COMPANIES

Garber Completion Makes 25,867 Bbls.

Record Well For Mid-Continent Area Maintains Big Flow of High Gravity Oil. May Be on South Side of Fault

By J. L. Dwyer

Interest in the Garber Field in Garfield County was revived last week when the Sinclair Oil & Gas Co. completed two good wells in the northwest section of the pool. One of these wells is the largest high gravity well ever completed in Oklahoma and the largest on which an actual gauge was obtained in the Mid-Continent area.

The mammoth well is the Sinclair company's No. 27 Hartley, NW cor. NW, Section 18-22-3w, which is exactly half a mile north of the famous No. 19 Hartley, which previously held the Garber honors for initial production. No. 27 Hartley found the Wilcox sand 4,216-40 feet and started flowing early Friday morning at a rate which prevented gauging on account of the lack of tankage facilities. On Saturday of last week, it was estimated at 1,000 bbls. hourly, with most of the oil going into earthen storage which had been quickly built. Late Saturday afternoon, sufficient pipe line facilities had been connected to handle the flow of oil. The Marland, Roxana, Garber, Sinclair and Champlin companies had built pipe lines and were running the oil from the new well.

The gauge Sunday morning showed the well had made 24,221 bbls. for the preceding 24 hours, and on Monday morning this figure was 25,867 bbls. The remarkable features of the well are the extremely low temperature, the high gravity of the oil, and the absence of salt water. In wells of this size, water is usually encountered, and the tremendous flow generally causes a temperature due partly to friction.

May Be Near Fault

The Sinclair Oil & Gas Co.'s No. 27 Hartley has maintained an average temperature of 85 degrees Fahrenheit since discovery, and the gravity of the oil has ranged from 45 to 47 degrees Baume. This is three degrees higher than the remainder of the Garber Wilcox sand production, and causes an additional profit to be realized by the owners on account of higher price commanded.

Located in the northwest corner of the Garber deep sand production, with the diagonal offset totally dry in the Wilcox sand, and the north offset a 400-bbl. well, the east offset not fully drilled in and now making 1,290 bbls. in the Wilcox sand, the only conclusion which may be formed as a result of studying the region adjacent to the new well is that it is on the south side of a fault, and that productive area will be forced to run east and west, as the north and northwest trend is eliminated. There is a possibility that the production may run to the northeast, as that direction is free from failures.

West of the well, the Sinclair Oil & Gas Co.'s No. 30 Walker, NE cor. NE, Section 13-22-4w, found the Wilcox sand 4,210-20 feet and made 1,290 bbls. in 24 hours. This well will not be drilled further until better pipe line accommodations are provided, and then it will very likely be deepened. To the north of the big well, D. W. Franchot's well made 400 bbls. when completed some time ago. It had the sand 4,382-45 feet, and considering the depth of the big well, it found the top of the pay 166 feet higher than the Franchot well. In the opinion of many geologists, the Franchot well is on the north side of the fault.

Wewoka Field Active

The Wewoka region in Seminole County is the next important spot with the Amerada Petroleum Corp.'s new Wilcox sand well flowing 6,500 bbls. daily. The Amerada Petroleum Corp.'s well, NW cor. NE NW, Section 5-7-8, had the deep horizon 4,131-39 feet and started flowing at 280 bbls. hourly. It extended the deep production a quarter mile east as recorded last week. Deeper drilling is responsible for the increased production, and the best pay was found in the last three feet. The temperature of the oil was 108 degrees Fahrenheit at the start and this figure was gradually increased until a peak of 120 degrees had been reached.

The Wewoka deep sand is now producing 17,650 bbls. daily divided as follows:

	Bbls. Daily
Amerada Petroleum Corp.	6,500
Magnolia Petroleum Corp.	6,800
Homa-Okla. Oil Co.	3,100
W. R. Ramsey	1,250
Total	17,650

Deeper Drilling Helped

The Homa-Okla Oil Co.'s No. 2 Carolina, SE cor. NE NE, Section 6-7-8, was drilled one foot deeper to a total depth of 4,109 feet and the daily production was doubled. The well increased from 1,500 to 3,100 bbls. These events increase the importance of the Wewoka deep sand area, and many students forecast a peak production of 30,000 bbls. for this operation.

In Logan County, the wildcat well of the Texas & Pacific Coal & Oil Co. in Section 28-18-4w, is a disappointment owing to the salt water which the well is spraying. The test found a sand 3,878-93 feet and was drilled to a total depth of 3,905 feet. The gas increased from a meager puff to 8,500,000 feet and was perfectly dry. The sand was said to be a white sand of the type which is often encountered in gas sands.

With the find of the big gas in Logan, there was a very conspicuous play started for leases in this region, and several companies made purchases before the water was struck. Logan County will unquestionably have a reaction as this is the first strike which has ever been made in that locality. There has been an inflation of lease values since the find, and the county will be observed much more closely.

Wildcat's Showing Better

The wildcat well of the Marland Oil Co. and the Roxana Petroleum Corp. in Section 13-29-2w, Kay County, has been put on the swab, and the production has been increasing. On Sunday of this week it made 81 bbls. of oil and 46 bbls. of water, and on Monday of this week it made 307 bbls. of oil and 162 bbls. of water. This is in the Wilcox sand, found at 3,872 feet. While the showing of this well has been rather disappointing, and no great drilling activity is likely to result, it will serve as a marker, and be of great assistance to the geological branch of the industry, as well as demonstrating that this sand is productive in the northern section of Kay County.

In the Deep Rock Pool in Payne County, the Deep Rock Oil Co.'s No. 1 Givens, NW cor. SW SW, Section 23-18-3, had the Wilcox sand 4,255-58 feet and flowed 1,083 bbls. The J. A. Hull Co.'s No. 1 Nelson, which was drilled in some time ago, is producing 800 bbls. from a total depth of 4,303 feet.

In Seminole County, The Texas Company has a deep dry hole in No. 1 Allenbaugh, SE cor. SW, Section 3-11-6, which is abandoned at a total depth of 4,747 feet.

In the Davenport Pool in Lincoln County, the Southwestern Petroleum Co. has a well flowing 3 bbls. of salt water an hour witth no oil or gas. It is No. 1 Deane, SE cor. NE, Section 21-14-5, and the sand was found 3,515-21 feet.

In Noble County, the Reiter-Foster Oil Co.'s No. 1 Buck, C SE, Section 33-22-2w, has 500 feet of oil in the hole from sand 4,670-75 feet. This formation will be tested out.

In the North Baltimore Pool, southwest of Okmulgee, the Independent Oil & Gas Co.'s No. 7-A Sugar, SW cor. NW NE, Section 13-12-11, is a light well and made 65 bbls. on the swab from sand 3,361-68 feet. This well is two locations northwest of the deep sand discovery well, and is somewhat of a disappointment. The first showing of oil was found 2 feet lower than in the offset to the south. The sand conditions rather than structural conditions seem to be responsible for the poor showing of this well, and the sand "limed" up.

Seminole County

Magnolia Petroleum Co. has the rig up for No. 2 Sullivan NE cor. NW SE, Section 10-9-5. Superior Oil Co. has moved in the rig for No. 1 Noble SE cor. SW SW, Section 10-9-6. Amerada Petroleum Corp. has built the rig for No. 1 Dyer NW cor. NE SE, Section 24-9-6. Barnsdall Oil Co. has the rig up for No. 1 Carter SE cor. SE NW, Section 24-9-6. Indian Territory Illuminating Oil Co. has the rig on the ground for No. 2 Dyer NE cor. NW SE, Section 24-9-6; and No. 1 Carter SW cor. NE, Section 24-9-6, is rigging up; the rig is on the ground for No. 8 Carter SE cor. SW NE, Section 18-9-8. Oklavania Oil Co. has the rig up for No. 1 NE cor. SW, Section 24-9-6. Independent Oil & Gas Co. and others have a rig on the ground for No. 1 Fixico SW cor. NE, Section 26-9-6.

North of Wewoka, T. B. Slick has a rig on the ground for No. 1 SE cor. SW SE, Section 7-9-8. Phillips Petroleum Co. has a rig on the ground for No. 2 Cobb NW cor SW SW, Section 8-9-8. Johnson & Ash and others have moved in a rig for No. 1 Palola NW cor. NW, Section 13-9-8. Mid-Continent Petroleum Corp. and others have a rig on the ground for No. 1 Culley NE cor. NW, Section 18-9-8. Oklavania Oil Co. has spudded No. 1 NE cor. NW SE, Section 18-9-8. Prairie Oil & Gas Co. is drilling at 650 feet in No. 1 SW cor. SE NW, Section 14-8-7. T. B. Slick has spudded No. 4 NW cor. NE SW, Section 14-8-7. W. R. Ramsey has the rig up for No. 5 Amos SW cor. SE SE, Section 31-8-8.

Curtis Bryan and others' No. 1 SE cor. SE, Section 4-7-6, is pumping 80 bbls. from sand 2,752-61 feet. This well has been shot with 10 and with 20 quarts.

Indian Territory Illuminating Oil Co. has a rig on the ground for No. 1 NE cor. NE, Section 9-7-6. Magnolia Petroleum Co. has built the rig for No. 6 Harjo NW cor. SW NW, Section 5-7-8. Homa-Okla Oil Co. is drilling at 250 feet in No. 3 NE cor. SE NE, Section 6-7-8.

SINCLAIR'S 25,000-BARREL WELL RECALLS OTHER NOTABLE GUSHERS

The 25,000-bbl. well of the Sinclair Oil & Gas Co. in the Garber Field, Garfield County, Oklahoma, is the largest initial producer yet completed in Oklahoma and one of the largest initial producers of high gravity oil ever brought in in any American oil field.

The well began producing on Thursday and for the first 15 hours ending at 6 o'clock Friday morning it produced 5,393 bbls., or at the rate of 23,000 bbls. a day, but the production increased as the hours passed and in the 24 hours ending at 7 o'clock Monday morning it produced 25,867 bbls. of oil. It is producing from the Wilcox sand.

This champion gusher is known as No. 27 Hartley and is in the northeast corner of Section 18-22-4w.

Other great wells have been completed in Oklahoma, but none of them has approached No. 27 Hartley in flush output. The Gypsy Oil Co. and Frank Gillespie's No. 11 Jackson Barnett, in the southeast of the southeast quarter of Section 5-17-7, Cushing-Shamrock Field, Creek County, Oklahoma, which came in February 7, 1916, producing from the Tucker sand, started at the rate of 4,000 bbls. a day from the top of the sand, increasing gradually to 300 bbls. an hour the same day and later making an estimated production of 14,000 bbls. a day. At least three other 10,000-bbl. wells were completed in the Cushing Field. The Hill Oil & Gas Co. getting a 12,000-bbl. well on the Sawyer farm, Section 27-17-7; the Midco Petroleum Co. completing one which gauged 10,484 bbls. a day in No. 10 Benoche Fixico, Section 17-18-7, and C. B. Shaffer a 10,000-bbl. producer on the Bruner farm in Section 33-17-7.

The Carter Oil Co.'s No. 33 Noble, northeast quarter of Section 21-4s-2w, Hewitt Field, Carter County, gauged 14,460 bbls. in one day, an average of 11,305 bbls. a day for 14 days pinched in, and an average of 7,382 bbls. of 35½ days. Water broke in and ruined the well. It was a freak producer as no other wells nearby got big production in this same horizon, between 2,900 and 3,000 feet.

The Roland Oil Co.'s No. 1, in the southwest quarter of Section 2-15-8, Creek County, was estimated between 12,000 and 20,000 bbls. a day from the Dutcher sand. It produced 500,000 bbl's. and then quit.

The Gypsy Oil Co. completed an 8,000-bbl. well on the Boston farm, in Section 1-21-7, Osage County, producing from the Wilcox sand, or as it was then called, the second break in the Mississippi lime, and the Minnehoma Oil Co. drilled a well in Section 14-26-8, Osage County, to the second break in the lime and it was estimated to be good for 14,000 bbls. The Department of the Interior issued an order to shut the well in, as it was flowing onto the ground and spoiling the grass for grazing purposes. When opened later it would not flow and none of the offset wells found the big pay.

The above mentioned wells were the largest initial producers in the State up to the discovery of the deep Wilcox pay in the Tonkawa Field in which the Wentz Oil Corp. completed a 14,000-bbl. well in No. 45 McKee, southwest quarter of Section 34-25-1w, which produced 1,433,336 bbls. from August 3, 1924, to September 20, 1925, at which time the well was making 916½ bbls. a day. It is still producing and its total output is second only to that of the Gypsy Oil Co.'s No. 11 Jackson Barnett which has made over 2,525,000 bbls. in the last 10 years.

Another Hartley Gusher

As big as the Wentz well proved to be, it had not the flush production of the Sinclair Oil & Gas Co.'s No. 19 Hartley, Section 18-22-4w, in the Garber Field, which gauged above 17,000 bbls. a day. This well came in last November and broke all records for high grade oil production up to that time. The Roxana Petroleum Co. also got wells that showed

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Magnolia Petroleum Co. is drilling at 650 feet in No. 1 SW cor. NE, Section 6-7-8.

Tulsa County

Suppes and others have a machine rigging up for No. 3 Mackey CSL NW SE, Section 34-19-12. S. E. Vance is drilling at 1,750 feet in No. 17 Vance, CEL SE SW, Section 3-18-12. Devonian Oil Co. has the rig up for No. 1-A Hawkins, CEL NW SE, Section 4-18-12.

Osage County

In the Fairfax district, the Prairie Oil & Gas Co. has spudded No. 5 SW cor. NW SE Section 21-25-6. In southern Osage County the Prairie Oil & Gas Co. is drilling at 1,369 feet in No. 7 Waldon C NW NE, Section 35-22-12. Devonian Oil Co. and Elliott have a failure in No. 9 NW cor NE NW, Section 20-20-12 which is abandoned at 1,776 feet; the rig is up for No. 9-A NW cor. NE NW, Section 20-20-12, a twin well. Sinclair Oil & Gas Co. is drilling at 1,530 feet in No. 13 Butts SW cor. SE, Section 12-21-12. Bird Creek Oil Co. is drilling at 500 feet in No. 16 Hanlon SW cor. NE SE, Section 24-21-12. C. B. Creekmore's No. 1-A SW cor. NW NE, Section 29-21-13, is dry and abandoned at 1,376 feet, and No. 9 Turber CWL NE NE, Section 29-21-13, is drilling at 845 feet.

Carter County

Magnolia Petroleum Co. has built the rig for No. 1 Moore SW cor. SE NW, Section 31-1s-3w. Simpson-Fell Oil Co. has moved in the rig for No. 2 Panell NE cor. SE NW, Section 34-1s-3w. Prairie Oil & Gas Co. and Wirt Franklin have a rotary rig up for No. 1 Pruitt NE cor NW, Section 3-2s-3w. Wirt Franklin has completed No. 4 CNL SE NE, Section 22-2s-3w. Broken sand was 2,652-2,860 feet and the well is flowing 200 bbls. Magnolia Petroleum Co. has a dry hole in No. 3 NE cor. SE SE, Section 23-2s-3w at 2,683 feet; and No. 7 NW cor. SE NE, Section 23-2s-3w had sand 2,598-2,605 feet and flowed 310 bbls. the first 18 hours and is drilling in sand and not completed.

Roxana Petroleum Corp. has set 12-inch casing at 340 feet in No. 1 NW cor. SE NW, Section 16-2s-2w. Merrick and others have moved in the rig for No. 1 Akers NE cor. NW, Section 27-2s-2w; and No. 1 NE cor. NW NE, Section 27-2s-2w had sand 1,083-98 feet and swabbed 16 bbls.

Merrick and others are drilling at 300 feet in No. 1 SW cor. NE NE, Section 8-3s-2w. Southerland Petroleum Co. has a rotary rig up for No. 2 Ward CSL SW NE SE, Section 16-4s-2w.

Pandem Producing Co. is drilling at 1,000 feet in No. 1 NW cor. SE, Section 8-5s-1w. Humble Oil Co's. No. 1 SE cor. NW, Section 35-5s-1w is drilling at 350 feet.

Okmulgee District

Near Beggs, Claypool & Bright have a dry hole at 2,752 feet in No. 1 NW cor. SW NE, Section 18-15-12. Gray and the Devonian Oil Co.'s No. 1, C N half SE, Section 23-15-12, had sand 2,634-36 feet and is shut in with 6,000,000 feet of gas. Paige Brothers and others have a failure in No. 1 SE cor. NE, Section 24-15-12 which is plugged at 2,680 feet. Darby Petroleum Co. has the rig up for No. 2 Sneed CNL NE NE, Section 35-15-12. Evans, Dow and others have a rig up for No. 1 Taylor SW cor. SW, Section 20-14-11. Prairie Oil & Gas Co. has built the rig for No. 3 Gibson SE cor. SW NE, Section 12-14-12. H. C. Detrick's No. 1 SE cor. SE, Section 21-14-12, is dry and abandoned at 2,772 feet. G. A. Gifford has a machine on the ground for No. 1 Bradford CWL NW NW NW, Section 34-14-12. Devonian Oil Co. and Independent Oil & Gas Co's. No. 7 SE cor. SW SW, Section 7-15-13 had sand 2,684-87 feet with a show of water in the bottom. It was plugged back one foot and made 35 bbls. daily; No. 8 Fields CWL NW SE SW, Section 7-15-13 is being rigged up, No. 14, C N half SE SE, Section 7-15-13, is drilling at 450 feet. W. B. Pine is drilling at 750 feet in No. 1 NW cor. SW, Section 3-15-14. Kingwood Oil Co. and others have a duster at 2,320 feet in No. 3-W. NE cor. NW NW, Section 32-15-14. F R. Smith has moved in a machine for No. 1 Checotah SE cor. NW SE, Section 35-14-13.

North of Morris, Aksarben and others have completed No. 7 CSL SE NE, Section 1-14-14. Sand was 1,025-40 feet, and the well is good for 8 bbls. after a shot of 60 quarts. Morgan & Kirkpatrick's No. 3 NE cor. NW SE, Section 6-14-14 is dry and abandoned at 2,400 feet. The Elm Oil Co. has completed No. 9 SE cor. NE SE, Section 13-14-14. Sand was 1,211-35 feet and the well is making 70 bbls. after a shot of 60 quarts. J. L. Selby has spudded No. 13 Anderson C NW NW, Section 35-14-14. New England Pipe Line Co's. No. 4-A NW cor. SW, Section 14-15-15, had sand 1,419-30 feet and made 40 bbls. after the shot. Link Oil Co. has a rig on the ground for No. 6 Sango SE cor. NE, Section 29-15-15.

H. E. Clark and others have a gas well in No. 9 CEL SW SE, Section 22-13-12. Sand was 2,133-37 feet and the well is shut in with 5,000,000 feet of gas. Independent Oil & Gas Co., and the Anglo-Texas Oil Co. have spudded No. 1-B SW cor. NE, Section 13-12-11. Champlin Refining Co. is drilling at 900 feet in No. 1 SW cor. NE SE, Section 16-12-11. Josey Oil Co. has the rig up for No. 12 McCoy NE cor. NW SW, Section 33-12-11, and the rig is on the ground for No. 13 McCoy SW cor. NW SW, Section 33-12-11, No. 11 McCoy NE cor. SW NW, Section 33-12-11, is being rigged up.

Mid-Continent Petroleum Corp's. No. 8 CWL NW SE, Section 12-13-13, had sand 2,437-57 feet and made 10 bbls. daily with a show of water. J. K. Gardner and others have completed No. 9 SE cor. NE NW, Section 4-13-14. Sand was 1,198-1,217 feet and the well is making 6 bbls. after a shot of 80 quarts. C. H. Lebow's No. 10 SE cor. NE SW, Section 15-13-14, had sand 1,605-35 feet and made 70 bbls after a shot of 170 quarts: No. 13 SE cor. NE SW, Section 15-13-14 had sand 2,442-55 feet and made 200 bbls. Utah Oil Co. has a dry hole in No. 14 CSL SW NE, Section 15-13-14, at 2,756 feet. W. R. Sommerville's No. 16 SW cor. NW, Section 25-13-14 had sand 1,788-1,835 feet and made 10 bbls. after a shot of 160 quarts, No. 1 NW cor. SE SW, Section 9-13-15, is spudded. H. G. Shepherd has a dry hole in No. 1 SW cor. NW SW, Section 26-13-16 at 2,783 feet.

In the Sheridan Pool south of Mounds, the Independent Oil & Gas Co. and others' No. 14, CSL SW NW, Section 27-16-12, had sand 2,890-92 feet with a hole full of water and the well was plugged back to the Wilcox sand where a show of oil was found. It is not completed. Pulaski Oil Co's. No. 10 CEL NE SW NW, Section 4-16-13 had a show of oil estimated at 5 bbls. a day in sand 2,119-31 feet. Leonard and others have built the rig for No. 2 Grant CWL SW, Section 19-16-13. H. E. Detrick is drilling at 350 feet in No. 1-A NE cor. SW, Section 21-16-13.

Stephens County

The Carter Oil Co. and the Knox Petroleum Co. are drilling at 350 feet in No. 1 NW cor. NE SE, Section 2-2-5w. Texhoma Oil Co's. No. 1 SE cor. SW, Section 36-2-9w had sand 1,837-44 feet with 15,000,000 feet of gas and is completed. Kinsey Law has rigged up a rotary for No. 3 Bryner SW cor. NW SW, Section 31-1-8w.

Magnolia Petroleum Co. has a rig up for No. 1 Johnson, NE cor. SE SW, Section 21-2s-7w. Gant and others have a dry hole in No. 1, NE cor. NW, Section 8-2s-6w at 3,500 feet. Magnolia Petroleum Co. has completed a gas well in No. 6 SW cor. SE, Section 25-1s-9w. Sand was 2,020-25 feet and the well made 73,000,000 feet of gas. Garvin Drilling Co's. No. 1 NE cor. SE SE, Section 26-1s-9w is drilling at 250 feet. Gant and others are drilling at 400 feet in No. 1-A SE cor. SE, Section 35-1s-9w. The Carter Oil Co's. No. 1 NE cor. NW, Section 36-1s-9w had sand 2,028-32 feet with 35,000,000 feet of gas. Murchinson, Fain and others have a dry hole at 2,250 feet in No. 1 NW cor. NW, Section 26-1s-8w. Gant and others' No. 7 SW cor. NW NE, Section 32-1s-8w is dry and abandoned at 2,235 feet. Pace and others are drilling at 1,550 feet in No. 1 Dare NW cor. SE Section 2-2s-8w; and No. 1-A Houston NE cor. SW, Section 2-2s-8w is drilling at 1,600 feet; No. 1 Allen SE cor. NE NW, Section 11-2s-8w, is drilling at 2,150 feet. Magnolia Petroleum Co's. No. 2 NE cor. SE SE, Section 11-2s-8w, is dry and abandoned at 2,030 feet; and No. 1, CNL NE SW SW, Section 12-2s-8w is dry and abandoned at 1,788 feet.

McPhail & Barkley have a rig up for No. 1 Thompson NW cor. SW NE, Section 10-2-4w. C. R. McCaughey and others have moved in a rig for No. 1 Jefferson NW cor. SE NE, Section 31-2-4w.

The Skelly Oil Co. is drilling at 500 feet in No. 28 SW cor SW, Section 26-1s-5w. Central Producers Co. has completed a gas well in No. 2, CWL SW SE NW, Section 10-2s-5w. Sand was 298-305 feet and the well is making 1,250,000 feet of gas. Spiegel & Hall's No. 2 CEL SE SW NW, Section 10-2s-5w had sand 820-56 feet and is making 10 bbls. daily. Homa-Okla Oil Co. has a dry hole at 2,504 feet in No. 1 SW cor. SE SE, Section 31-2s-5w.

Garvin County

Magnolia Petroleum Co. is drilling at 750 feet in No. 8 SE cor. NE SW, Section 16-1-3w; and the rig is up for No. 11 Harris CSL NW NW NW, Section 16-1-3w. Mid-Continent Petroleum Co. has rigged up a rotary for No. 2 Derdyn NE cor NW SE, Section 17-1-3w, and for No. 3 Derdyn SW cor. NW SE, Section 17-1-3w.

Jefferson County

Brown and others are drilling at 200 feet in No. 4 Seay CSL SE NE NW, Section 33-6s-5w. The Carter Oil Co's No. 2 CSL NE NE, Section 33-6s-5w, is drilling at 680 feet.

Burris & Stahl are drilling at 450 feet in No. 1, C NE SW, Section 33-3s-6w.

Tillman County

Landfair and others have a rotary rig up for No. 1 Connell SE cor. SW SE, Section 6-2s-16w.

Comanche County

Atmer, Caraker and others' No. 1 CEL SE SE SW, Section 14-1s-10w is dry and abandoned at 2,204 feet. McBee and others have a rotary rig up for No. 1 John NW cor. NE, Section 21-1s-10w.

Grady County

Sinclair Oil & Gas Co. has a rig on the ground for No. 4 Geckler CEL NE SE, Section 22-5-8w. American Drilling Co. has rigged up a rotary rig for No. 6 Farrell NW cor. SW SW, Section 23-5-8w. Skelly Oil Co. is drilling at 415 feet in No. 3 Meely CNL NW NE NW, Section 23-5-8w. Briscoe & Hall have completed No. 1 NE cor. NW NE, Section 27-5-8w. Broken sands were 2,180-2,420 feet and the well is making 38,000,000 feet of gas. J. B. Nichols' No. 1 CSL SE SW SE, Section 35-5-8w, had sand 1,420-1,520 feet with 5,000,000 feet of gas.

English Jacobs' No. 3 NW cor. SE SE, Section 31-6-9w is drilling at 450 feet.

Goldenline Oil Co. and others have completed No. 1 SW cor. NW NW, Section 27-3-5w. Sand was 1,360-1,420 feet and the well has 7,000,000 feet of gas. The rig is being built for Briscoe & Hall's No. 2 Cochran SE cor. NW NW, Section 27-3-5w. White Eagle Oil Co. has rigged up a machine for No. 1 Cochran NW cor. NE SW, Section 27-3-5w.

Briscoe & Hall have a dry hole in No. 1 NW cor. SE SW, Section 14-4-8w at 3,410 feet.

Payne County

In the Ingalls Pool, the Roxana Petroleum Corp. is drilling at 250 feet in No. 4 Stover SW cor. SE SW, Section 13-

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UNUSUAL PRODUCER TO STIMULATE SUMNER-PADGETT AREA IN KANSAS

By J. L. Dwyer

The country on the Sumner-Cowley County line was the most observed spot in Kansas last week when the Phillips Petroleum Co.'s No. 2 Holt was drilled in and found to be the largest producer in that area. The new well is SE cor. NE SE, Section 24-33-2, and the sand was found at 3,211-34 feet, and the well flowed 425 bbls. the first 24 hours and 460 bbls. the next 24 hours. It is in a region where the average completions have been very small, and several dry holes had dimmed its prospects. It was the only well drilling immediately to the west of the Rainbow Bend Pool which had good chances, as the remaining wells were cut off from production by failures. The new find will stimulate drilling in the Sumner-Padgett area once more.

To the northeast of Rainbow Bend, the Gypsy Oil Co.'s Nos. 2 and 3 Hunt appear to be failures at the depth of the Rainbow sand. Both of these wells are located in the southwest quarter of Section 16-33-3, across the river from Rainbow.

In the Rainbow Bend Field, the only completion of the week was a dry hole of the owners, Waite Phillips Co. and others' No. 2 Allison in the bend of the river in the NE quarter of Section 28-33-3, which had the sand at 3,376-3,427 feet with only a small showing of oil. It is plugged from the depth recorded above. The daily average production for last week in the Rainbow Bend Field was 4,584 bbls.

Anderson County averaged 3,180 bbls. daily last week.

Ellsworth County

Wrightsman Petroleum Co. has built the rig for No. 1 Herman, C SW, Section 3-16-8w.

Rice County

H. F. Wilcox Oil & Gas Co. has built a rig for No. 1 Welch, SW cor. NE, Section 35-21-6w. United Refining Co.'s No. 1, NE cor. SW, Section 2-21-6w, had sand 3,370-77 feet, and the well made 200 bbls. naturally. Hipple and others have the rig on the ground for No. 1, SE cor. SE, Section 17-21-6w.

Reno County

Shelton and others have moved in tools for No. 1, SW cor. NE SE, Section 10-23-4w, where the rig has been standing for some time. It is reported that this test will be spudded very soon.

Barber County

Vickers Petroleum Co. and Miller have a rig up for No. 10, SW cor. SE, Section 35-32-14w.

Russell County

Mid-West Co. has completed No. 13, SE cor. NE NW, Section 8-12-15w. Sand was 2,925-70 feet, and the well made 180 bbls. naturally. Valerius Oil & Gas Co.'s No. 9, NW cor. NE NW, Section 17-12-15w, had sand 2,979-90 feet, and made 40 bbls. naturally. Skelly Oil Co. has spudded No. 4 Oswald, SE cor. NE, Section 18-12-15w.

Sumner County

The Marland Oil Co. and Brady Brothers are drilling at 1,900 feet in No. 1, NE cor. NW NE, Section 24-33-2. Prairie Oil & Gas Co. is drilling at 550 feet in No. 1, SW cor. NE, Section 34-34-2.

Cowley County

Shawver & Salter's No. 2, NW cor. SW NW, Section 5-31-6, had sand 2,842-56 feet, and made 17 bbls. oil and 25 bbls. water after being shot with 20 and with 40 quarts. Southwestern Petroleum Co. is rigging up No. 1 Eastman, NW cor. SE NE, Section 6-31-6.

In Rainbow Bend, the Barnsdall Oil Co. and others' No. 11, SW cor. SE NW, Section 28-33-3, had sand 3,264-89 feet, and flowed 400 bbls. naturally.

Doric Oil & Gas Co.'s No. 1, NW cor. SE NW, Section 18-33-7, had sand 2,723-31 feet, and was shot with 20 quarts and made 25 bbls. It is being cleaned out. Near the Oklahoma line, Rosenthal and others' No. 1, C NW SE, Section 14-34-4, an old welll drilled deeper, had

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Cole Field Well Flows 500 Bbls. Daily

Quarter-Mile South Cin-Tex Discovery. The Texas Company to Make New Test in Jennings Field, Zapata County

By B. D. Stevenson

SAN ANTONIO, Tex., Mar. 29.—Cole Petroleum Co. has completed its No. 17 Benavides in Block 13 of Section 11 in the Cole gas field flowing about 500 bbls. daily and located about a quarter of a mile south of the Cin-Tex Petroleum Co.'s No. 1 which came in a few weeks ago shooting oil to the crown block. When Cin-Tex's No. 2, located 505 feet northeast of its No. 1, came in a gasser spraying oil and Houston Oil Co. a week ago brought in its No. 1 located 300 feet southeast of the Cin-Tex No. 1 swabbing but failing to flow, the field, for a time, while it promised to make a good field didn't look quite as good as the early conduct of the discovery well. The Cole well is a quarter of a mile south of the Cin-Tex No. 1 and is flowing at the rate of about 500 bbls. daily. Houston Oil Co. is putting its well on the pump and it looks like a 500-bbl. pumper. All these wells are close to the proven line of the gas field which had already been developed with several gas wells which are flowing into the line of the Southern Gas Co. to San Antonio.

In the Piedras Pintas salt dome district in Duval County both the Humble's No. 5 and the Moody-Seagraves and William F. Morgan No. 1 should be ready to test in the 3,623-foot sand of the discovery well by the last of this week or the first of next, and will be the first completions in that sand.

In Jim Hogg County Benedum & Trees have started the first of the three deep tests they will drill on the Wilbur Allen ranch. It is being drilled by the Pittsburgh Oil Development Co. which was organized to wildcat in south Texas and is on Block 113 in the southeastern part of the ranch. A location has been made for another test in Block 14 of Section 44 in the northwestern part of the ranch, 8 miles to the northwest and location for a third on Block 22 of Section 41, about midway between the two. National Oil Co. is rigging up to drill on Block 3 of Section 23 in the northwestern corner of the ranch. The ranch consists of 65,000 acres and Benedum & Trees have a block around each of their three locations and National has a block around its location.

Kitselman & St. Albans, who drilled several gas wells in the western part of the Holbien ranch and just north of the proven oil territory of the Henne, Winch & Fariss Field in Jim Hogg, have made locations for four additional tests in that area and let contracts for the wells to be drilled at once in the hopes of finding an oil pool connected with the gas area. They secured two blocks of acreage from the old Elm Oil Co. which drilled there a few years ago and their No. 27 Holbien will be on Block 40, Section 11, and No. 29 will be on Block 6 of Section 11, both on acreage secured from the Elm Oil Co. No. 28 will be on Block 24 of Section 11 and No. 1 Weber will be on Block 1 of Section 15, both on acreage secured from Weber Oil Co. All four are off to the northeast of the tests heretofore drilled.

Zapata County Test

The Texas Company which last November had a gas blowout in a deep test in the old Jennings gas field in Zapata County at 3,965 feet has set casing in No. 2 at 3,804 feet and will soon be ready to test one of the most important wells in south Texas. The first well had only 900 feet of casing in the hole and had gas sands at 1,600 and 3,200 feet before encountering the sand at 3,957 to 3,965 feet. There was room left for argument as to which sand the gas blowout came from. All through the Webb-Duval-Jim Hogg-Zapata territory oil has been found practically always in larger or smaller quantities in association with gas. None of the old production is coming from much below 2,000 feet. Oil men have been predicting deep oil and there is a growing tendency to drill deep. The Texas Company test in the light of the gas blowout and its depth will be watched with especial interest when it is tested.

Milam County

Alexander & Lyle, Inc., have blocked 2,000 acres in Milam County in the T. J. Chambers, Patience Sapp and S. C. Robertson surveys, 3½ miles north of Rockdale and a test is to be started on the Patience Sapp survey which will be drilled by Cranfill & Reynolds. The location is about 2½ miles southwest of the Leonard Isaacs test drilled by Lee and others last year and which twisted off a drill stem at 3,425 feet just after taking a core in the top of the Edwards and has never been completed. The location is a little less than 9 miles north of the Magnolia's test on the Kime farm in the southwestern corner of the county and which was abandoned at 3,805 feet when 30 feet into the Edwards and with some showing of oil.

Medina County

Medina County with about 30 wells drilling or rigging up has come to be one of the most active in south Texas. Ina Field, 12 miles south of Hondo and the same distance west of Devine, is still wrestling with loose sand trouble, wells there pumping a large volume of oil after being cleaned out but sanding up soon after being put on the pump again. Golden West has four wells completed on the Regina Schmidt and No. 5 started drilling. Offsetting these wells on the south Eastman and Tarver have two wells on the Vio'a Wilson and Gibson Oil Corp. has three and is drilling at about 600 feet on the fourth. Magnolia Petroleum Co. is cleaning out the fourth of the five wells it purchased from the Ina Oil Co. some weeks ago with a block of acreage. Ina Oil Co., 1 mile west of this center, completed its first on the Viola Wilson farm and is drilling at around 450 feet on No. 2, located 600 feet to the north of it, and both on the Moses Griffin Survey No. 343. L. Smith, who spudded in last week with a spudder on the J. C. Jay farm in Survey 531, a mile west of Ina's Viola Wilson wells, has changed to rotary rig and resumed drilling again and Arnett Oil Co.'s No. 3 Nixon, a half-mile south of the Eastham & Tarver wells, is drilling around 400 feet. Eastham & Tarver the past week spudded in a test about a mile north of the center of the Ina Field on the Muzzman farm in the southeast quarter of Survey No. 16.

Wildcat tests in the county include two started by the Alamo Drilling & Leasing Co., one on the Kreisler farm a little west of Noon and in the eastern part of the county which will be an Edwards lime test, and the other on the Louis Graff farm in the William Bryan Survey No. 20, a few miles north of the Ina Field. Ina Oil Co. has started its Charles Finger test in the center of the north half of the George E. Harrison Survey No. 746 in the western part of the county, using cable tools. Derrick went up last week. Henderson & Holden have been working all week with the gasser they got on the Adams tract in Edmund C. Durst Survey No. 13, a mile south of the Ina Field. A valve was placed on the well and closed but the gas blew out around the 8¼-inch casing of which there is 483 feet set and the valve was opened again. Standard tools which had been replaced by the rotary are being put back on the hole and a full string of casing will be set to the bottom of the hole which is 903 feet. The well gauged by the Southern Gas Co. showed 9,882,000 feet after running wild for more than a week. J. T. Barlow and associates have rigged up on the Howard tract in Survey 91, 2 miles to the east, and are starting a test. Grayburg Oil Co. on the P. S. Ward in the southwestern part of the county is drilling at 1,400 feet. Plateau Oil Co. is about ready to spud in its wildcat test on the Harrison farm in Survey 72½, a few miles west of Grayburg. California Medina Oil Co. is drilling in Pennsylvanian formation at 3,080 feet northwest of D'Hanis. Cecil Switzer of Shawnee, Okla., has gone into the Zerr test northeast of D'Hanis, which has been standing at 1,112 feet for over a year and has the hole cleaned out to 1,070 feet and will drill to around 2,000 feet. J. E. Walsh has started drilling on the Saathoff farm in Survey 847 south of D'Hanis a few miles and is down 400 feet. He is erecting derrick for a test on the Faseler farm in Survey 808, a few miles southwest of the Ina Field. Doctor Collard is starting a wildcat test north of Hondo.

Around No. 1 Taylor, which the Medina Oil Co. completed at 356 feet a few weeks ago, 4 miles south of Hondo, Albert Buchanan is drilling No. 1 Odem at 150 feet with a log running pretty regular with No. 1 Taylor. Medina Oil Co.'s No. 2 Taylor made a well of several barrels at 315 feet and was drilled to 380 feet without bettering it and came back and put the well on the pump at 315 feet. It has since been decided to deepen it and it is drilling again at below 400 feet. Golden West which had a fishing job in its No. 2 Odem at 80 feet skidded 5 feet and drilled to 80 feet where it got another fishing job of the same kind and has skidded the rig back to the first hole and will fish out the bit. A light spudding machine is being used. Golden West's test on the Batot in Survey 134 west of No. 1 Taylor, is drilling at 125 feet. Medina Oil Co. has made location for a test on the Mott farm in Survey 1267. Reager and others are drilling at 375 feet in the Langfeld test on Survey 117 and have made location for a test on the Schreiber farm in Survey 115, a little the southwest of the No. 1 Taylor. Dr. J. M. Cavender and others are fishing at 275 feet in the test on Mott farm in Survey 1479 south of the Taylor well. Kittle & Townsley's No. 1 Richter tested at 650 feet, dry, a mile west of the Taylor well in Survey 89 and has resumed drilling. They are shut down at 75 feet in a spudding machine test on the Batot in Survey 134, a little west of the Taylor well and have made a location for an Edwards lime test in Survey 593 on the Bendel farm. Jacobs & Powell are rigging up on the Haeglin farm in Survey 1473.

Duval County

In the Noleda Field, where the Humble company last December brought in the No. 4 Walsh on the Piedras Pintas salt dome, opening a new pool, Humble set and cemented casing in No. 5 Walsh, located 450 feet southeast of No. 4, at 3,556 feet. Production in No. 4 was obtained at 3,623 feet. Moody-Seagraves, who tested

(Continued on Page 126)

SHUT DOWN IN MEXICO POSSIBLE AS CONFEREES FAIL TO AGREE

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Mar. 29.—Advices received in New York as this is written are to the effect conferences between representatives of American oil companies and Mexican government officials respecting regulations of the new petroleum law have terminated without any satisfactory result and that the American conferees are leaving Mexico.

While there has been no direct word in official quarters regarding the conferences, it is understood that the situation is viewed as discouraging by the oil companies. The indication is that President Calles will go ahead with the promulgation of regulations containing the objectionable features of the original draft and that this will leave the companies with no other alternative than to rest their case, as previously, with the American State Department.

May Restrict Operations

In conformity with their stand, also, they are faced with the immediate prospect of restricting their operations in Mexico. There is even a possibility of a general shutdown until the position of the foreign companies operating in Mexico can be clarified. The law clouds the title to all the lands acquired prior to 1917, according to their contention and to continue operation presents an impossible business situation, it is stated.

While it is apparent that the oil companies will try to do nothing that will embarrass the State Department in its further negotiations with Mexico City, it is pointed out that without clarification of the point as to the retroactivity of the new law to go ahead with drilling and development work would be foolhardy.

The conferences in Mexico City were arranged at the invitation of Luis Morones, Minister of Industry, Commerce and Labor, and were participated in by representatives of American oil companies, who previously held a preliminary conference in San Ontonio, Tex. Those attending the conferences were Chester O. Swain, general counsel of the Standard Oil Co. of New Jersey, and A. F. Corwin, president of the Carter Oil Co.; F. H. Wickett, chairman of the board, and Haro'd Walker, vice president Pan American Petroleum & Transport Co.; Judge Feuille, Standard Oil Co. of California, and A. E. Watts, Sinclair Consolidated Oil Corp., together with local representatives of practically all the American oil companies operating in Mexico.

Shutdown Probable

While officials in touch with the Mexican negotiations are reluctant to talk about possible shutting down of operations in Mexico, certain significant things point to this as a probability. One is a recent increase in shipments out of Mexico indicated by increased receipts in this country. The daily average receipts in March are running around 230,000 bbls., as against 206,000 in February; 192,000 bbls. in January and 165,000 bbls. in December. This indicates a probable heavy movement of oil out of storage preparatory to a shutdown.

The Standard Oil Co. of New Jersey probably sounded the sentiment of the American companies when in the last issue of the Lamp it stated:

"It is hoped that when the regulations of the recently enacted petroleum law are promulgated, it will be found possible to extend drilling operations into unproven territories. There is every reason to believe that there are in Mexico new petroleum fields awaiting the drill.

"The Standard Oil Co. of New Jersey through its subsidiaries will endeavor

(Continued on Page 137)

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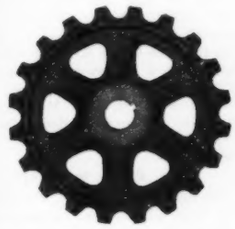

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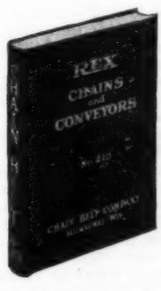


The Chain Belt No. 210 Catalog and Engineering Data Book shown above consists of 512 pages. It lists in detail all information for the ordering and use of Rex Chain, Conveyors and Transmission Machinery.

Boling Dome Probably Disappointing

Now Doubtful About High-Priced Holdings. Vacuum-Gulf Companies Get Third in 10 Days in Lockport, La.

By P. L. McGreal

HOUSTON, Tex., Mar. 29.—The third well in 10 days in the Lockport district, Calcasieu Parish, Louisiana; extension of the salt area around the new Boling Dome and a tornado that caused a loss of $500,000 in the Orange Pool were the features of the week in the Gulf Coast region. The Hull and Orange Pools furnished nice wells, the producer in the Orange Pool coming in before the storm struck.

The future of the Boling Pool in southwestern Wharton County, 22 miles west of West Columbia, does not look as promising as it did one month ago. Much of the territory that then looked good has since been either condemned or its prospects dimmed. Operators are very much at sea concerning subsurface conditions there, as revealed by drilling and finding themselves facing problems they never encountered before in the Coastal division.

During the week the dome area was extended about one mile northwest from the present production when Nelms and others went into dome formation in No. 1 Bey at 928 feet and abandoned the hole. The Atlantic Oil Producing Co. abandoned No. 5 Taylor as a location. The Humble Oil & Refining Co. killed the gas in No. 1 Hawes and it heads 65 bbls. of oil with the screen reset at 2,850 feet. The oil is 27 gravity. Murchison & Fain quit No. 2 Floyd in dome formation at 1,125 feet. It is southwest of production.

Trend to West?

Getting cap rock in the test on the Bey land at 928 feet causes operators to believe the trend now veers to the west. If this surmise is correct much high-priced acreage between production and the Bey land and to the north is practically condemned. The area of the dome is being extended almost every week until it now is about 3½ miles from north to south and more than 3 miles from east to west. The early exploration work by the Gulf Production Co. during 1924 and 1925 practically defined the dome on the north and extending around to the east and southeast sides. The East San Bernard River cuts along the northeast side of it. Early this month, the Gulf company abandoned No. 1 Chase, 3,000 feet southeast of production in a cavity at 2,800 feet.

The Texas Company moved around to the northwest side and drilled two holes on the Taylor, both failures. No. 3 Taylor, the discovery well, came in last December, getting the pay in shaly sand at 3,338 feet. The well was estimated good for from 8,000 to 10,000 bbls. but was shut in to 4,000 bbls. flowing into pits until storage could be provided. The high gravity, 33 Baume, was a surprise, but the temperature of 70 degrees gave promise of a long-lived well. This well flowed until late in February when it sanded, but was restored to production in a few days, making 2,000 bbls. This week it was put on air and is doing 200 bbls.

Calls It "Tear Gas"

There naturally followed a rush to secure acreage on the northwest and west sides of the dome, close to The Texas Company's 400-acre Taylor lease. The Sinclair Oil & Gas and Sun Oil Co. picked up long strips in the order named west of the Taylor and the Atlantic Oil Producing Co. got in on a small square northwest. The Humble Oil & Refining Co. and the Vacuum Oil Co. got the Hawes 74 acres and the Hooper 100 acres respectively, joining the strips on the west. There the development to date has centered, with the exception of the Chase and Bey leases already mentioned and the Floyd lease secured by the Oxford Oil Co.

Lease speculators confined their activities to buying royalty interests from the land owners, some of them paying fancy prices. The pool shows an unusually strong gas pressure, which, however, is now weakening. The gas is something akin to that found during the early days of the Spindletop, Batson and Sour Lake Pools, with a sulphurous content and is called poisonous, because field workers overcome with it are made seriously ill. One of the royalty buyers, mindful of his investments that now look like losses, calls it "tear gas."

The varying depths and varying gravities of the present wells, all located within a limited area, is one of the perplexities that those interested in the development are trying to solve. The pool is the most westerly in the Coastal Plains area, with the East San Bernard River cutting the northeast side and the Colorado River some 12 miles west. The present production lies between the large salt core to the east and the dome formation to the west, which has caused several geologists to characterize the location as a "double dome."

The daily average production of the pool for the week is 3,490 bbls. divided as follows:

Company	Well	Depth	Gravity	Pres.	Prod.
The Texas Company,	No. 4 Taylor	3,120	25.		2,150
The Texas Company	No. 3 Taylor	3,338	33.		200
The Texas Company	No. 6 Taylor	3,107	27.		485
Atlantic O. P. Co.	No. 1 Taylor	3,285	25.		500
Sun Oil Co.	No. 1 Taylor	3,071	30.		60
Oxford Oil Co.	No. 1 Floyd	2,865	36.2		30
Humble Oil & Refining Co.	No. 1 Hawes	2,850	27.		65
					3,490

In addition to the above list, the Atlantic Oil Producing Co.'s No. 2 Taylor sanded after flowing 1,500 bbls. for several hours, 25 gravity oil. The depth is 2,963 feet. The hole is being worked over to set a liner.

The Sinclair Oil & Gas Co.'s No. 1 Taylor came in a gasser and spraying 1,000 bbls. of oil, 28 gravity, at 3,161 feet.

Approximately 20 wells have been drilled to date on and around the dome, including formation tests with gasoline rotary rigs and deep tests.

Wells Now Drilling

On the west side of the Taylor 400-acre lease The Texas Company is now drilling No. 5, setting casing around 3,510 feet preparatory to making a test. It is an offset to Sinclair's No. 1 Taylor. No. 7 Taylor is around 3,545 feet and No. 8 is around 2,000 feet. No. 1-B Floyd, north of the Taylor, is around 875 feet. The Atlantic Oil Producing Co.'s No. 3 Taylor is at 2,935 feet and showing gas. No. 4 is shut down at 1,765 feet. The Sun Oil Co.'s No. 2 Taylor is deepening at 3,006 feet. No. 3 is around 3,100 feet. No. 4 is below, 3,000 feet. No. 5 is drilling at 2,545 feet with a derrick standing for No. 6. Locations have been made for Nos. 7, 8, 9 and 10. The Sinclair Oil & Gas Co.'s No. 1 Taylor is working over. No. 2 is around 3,500 feet. No. 4 is at 3,455 feet. No. 3 is at 3,024 feet. No. 5 is drilling around 2,455 feet with a derrick up for No. 6. The Humble Oil & Refining Co.'s No. 2 Hawes is at 2,135 feet. No. 3 is around 1,235 feet. No. 4 is shut down. It offsets the Oxford Oil Co.'s No. 1 Floyd. No. 5 Hawes, another offset of the Oxford company's No. 2 Floyd, is drilling below 1,985 feet. No. 6 is at 1,775 feet, offset to the Vacuum Oil Co.'s No. 2 Hooper. The Oxford Oil Co. is drilling Nos. 2 and 3 Floyd. The Vacuum Oil Co.'s No. 1 Hooper is around 3,410 feet. No. 2 Hooper is rigging.

It will be noted that the tests now drilling are nearly all far below the depth at which the pay was found in the discovery well. The list given above are located northwest, west and southwest of the discovery well. The J. K. Hughes Development Co. has started No. 1 Mullins, west of the Hooper. It is that company's initial test in the coastal region. R. E. Brooks, Jr., has locations for four tests on the Mullins, which comprices 419 acres, the Hughes company test being on 60 acres out of the northeast corner. Murchison & Fain's No. 2 Fain is a location.

Tornado Hits Orange Pool

A tornado struck the Orange Pool, 7 miles west of the city of Orange, Tuesday morning, resulting in the death of one man, injuries to eight persons and causing a loss estimated at $500,000 in the field. The funnel-shaped storm ripped through the field at a rate of 50 miles an hour.

Glenn Keown, aged 65, a helper at a drilling well, was struck by a timber and the back of his skull crushed. He died in the Orange hospital. Two drillers were slightly hurt and seven negroes sustained broken legs, arms and cuts and bruises.

The storm veered eastward, hitting a section of the Vinton (La.) Pool, 7 miles east of Orange, but the damage there was slight.

Some 200 derricks were demolished. The Gulf Production Co. lost 30, the Humble Oil & Refining Co. 25, the Rycade Petroleum Corp. 24, the Kishi Development Co. 7. The balance was scattered among the smaller companies operating there. A large proportion of the demolished derricks will be replaced with steel. The pool is pumped electrically and approximately 5,000 bbls. of the total daily average production is from electrically operated pumping plants and the wells will be shut in until the wires are replaced. The current is supplied by the Orange Electric Co. The flowing wells are also shut in temporarily. Twenty steel derricks were ordered from Houston Thursday afternoon.

The approximate depths of the drilling wells before the storm were as follows. Gulf Production Co.'s No. 3 Hager fee, at 4,650 feet; No. 21 Hager fee, 4,175 feet; No. 22, at 3,475 feet; No. 3 Chesson at 4,600 feet, and No. 9-B Kishi-Lang, rigging up. The Texhoma Co.'s No. 4 Chesson, sidetracking; No. 7, shut down; No. 10, drilling at 4,750 feet, and No. 14, shut down at 4,760 feet. The Rycade Petroleum Corp.'s No. 6-B Cow Bayou, at 4,625 feet; No. 2, at 4,640 feet, and a derrick up for No. 5. The Humble Oil & Refining Co.'s No. 25-A Chesson, at 4,960 feet; No. 5 Myers, sanded at 3,315 feet. The Kishi Development Co.'s No. 7 McGuire, is deepening at 4,875 feet and Orange Petroleum Co.'s No. 11 Chesson, drilling at 4,925 feet. Sun Oil Co. was rigging No. 1 Bellisle to work it over.

Increase in Production

The estimated daily average gross production for the week ending March 27 in the coastal territory is placed at 100,165 bbls., an increase of 3,760 bbls. over the previous seven-day period. The Orange Pool was averaging 15,460 bbls. previous to Thursday's storm, which is an increase of 1,385 bbls. over last week's estimate.

BAISH WILDCAT IN NEW MEXICO MAY OPEN NEW PRODUCTIVE AREA

By Special Correspondent

ARTESIA, N. Mex., Mar. 27.—Gauging 10,000,000 feet of gas through an 8-inch hole, the Maljamar Oil & Gas Corp.'s No. 1 wildcat on the Baish permit, in the NE of Section 21-17-32, has against revived interest in southeastern New Mexico as, from all indications, it means the opening of a new productive area.

Located in the Mescalero sands, 4 miles west of the caprock, the well is a rank wildcat, having been located by Superintendent M. E. Baish, who had no geological information to back his judgment. This is due to the fact that the country to the east is overlaid with several hundred feet of shifting sands that cover any outcrops.

After drilling through 145 feet of sand, which was topped at 2,334 feet, 60 feet of hard gray lime was encountered at 3,048 feet with the gas sand picked up at 3,115 feet. A gauge taken on the well Sunday by the Phillips Petroleum Co. showed the well to be maknig 7,000,000 feet. Drilled into the sand a distance of 10 feet, the pressure again increased and a gauge taken Monday registered 14,000,000 feet with the hole spraying considerable oil. Many are of the opinion this oil is coming from the pay at 2,334 feet and this will be definitely settled when the crew has completed running the 3,000 feet of 8¼-inch casing.

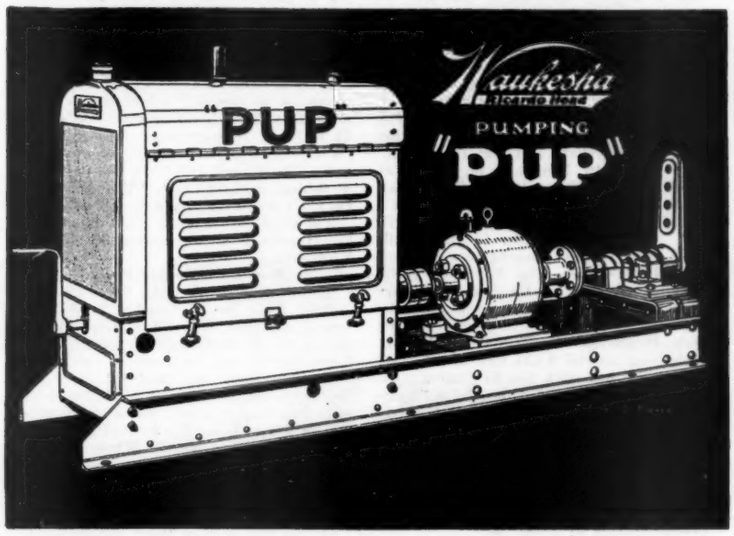
In the proven area a number of completions were made during the week. Flynn, Welch & Yates are cleaning out their No. 39, located in Section 21-18-28, which was shot from 2,111-35 feet. The hole is now being cleaned and after casing has set will be deepened to 3,500 feet.

In the same section this company has a good completion in its No. 3 Keyes

(Continued on Page 130)

Oil running into slush pit at Maljamar's wildcat test in Lea County.

Waukesha Gear-driven Individual Shallow Well Pumping Unit



Waukesha Pumping "PUP" Revolutionary

Because of its moderate price, simplicity, easy portability and convenient installation, this new Waukesha Oil Field Pumping Unit sets a new standard of getting quick production from shallow wells. It is a unit of proven reliability—it runs on waste gas or gasoline, and it has practically a 100% salvage value.

There is a folder on this unit—also folders on "Deep Well Power Pumping Unit" both of which will be gladly sent on request.

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The storm will cause the loss of two days' production there for this week.

The estimate for each pool is as follows:

Pool—	Gross Bbls.
Boling	3,490
Batson	1,500
Blue Ridge	650
Big Creek	1,300
Barber Hill	110
Dayton	50
Damon Mound	965
Edgerly (La.)	825
Goose Creek	9,400
Humble	4,550
Hull	18,875
High Island	130
Jennings (La.)	1,000
Lockport (La.)	5,800
Nash Dome	250
Markham	75
Orange	15,460
Orchard	200
Pierce Junction	1,615
Piedras Pintas	1,200
Spindletop	2,475
Saratoga	1,375
Sour Lake	4,600
South Liberty	7,100
Vinton (La.)	6,650
Welsh-Anse La Bute (La.)	80
West Columbia	10,320
Miscellaneous	120
Total	100,165

Southwest Fields

The estimated gross daily average production for the southwest fields for the week is 39,000 bbls., a decrease of 810 bbls. compared with last week. The estimate for each field is as follows:

Field—	Gross Bbls.
Luling	22,050
Laredo	3,370
Somerset	2,215
Cailliham	225
Rockdale-Minerva	935
Jim Hogg County	3,155
Lockhart	7,050
Total	39,000
Grand total for week	139,165
Grand total last week	136,215
Net increase	2,950

Wells Completed and Drilling

The best completion of the week was the Vacuum-Gulf companies' joint No. 6 Miller in the Lockport (La.) Pool, which came in flowing 3,300 bbls. initial at 4,455 feet, 24.3 gravity oil. Late in the week the well was making 2,500 bbls., showing 7 per cent water and sediment. It is located 1,500 feet southwest from No. 1 Miller, the discovery well there. No. 2 Bordages, recently completed, extended the territory 2,000 feet northwest and No. 2 Friedberg & Wolfe was an extension of 2,000 feet southeast. No. 2 Bordages is now down to 400 bbls. and No. 2 Friedberg & Wolfe has sanded and quit flowing.

The Vacuum-Gulf's No. 5 Miller is sidetracking. No. 7 is drilling around 2,755 feet. No. 8 is below 3,100 feet and No. 9 at 3,255 feet. No. 1 Friedberg & Wolfe is deepening at 2,565 feet and No. 3 Farquhar is around 2,566 feet.

The Gulf Refining Co.'s No. 38 Clement in the Jennings Pool is pumping 15 bbls. at 1,650 feet.

In the Vinton Pool, Atkins-Berger Syndicate's No. 3 Vincent is making 150 at 2,056 feet. The Vinton Petroleum Co.'s No. 7 Vincent is bailing at 2,900 feet.

The Gulf Refining Co. of Louisiana is drilling No. 37 Star-Vincent at 3,700 feet and No. 1-A Gray is at 1,170 feet. The Texas Company's No. 1-A Gray is at 3,380 feet. No. 1-C Gray is around 4,000 feet. No. 15 Gray is shut down. The Vinton Petroleum Co.'s No. 18 Rescue is at 1,897 feet. No. 55 Gray is around 1,700 feet. Wilson & Broach's No. 11 Parks is rigging. The Edgerly Petroleum Corp.'s No. 3 Vincent is below 3,090 feet. Marrs McLean's No. 10 Gray is at 845 feet.

In the Edgerly Pool, the Green Oil Co.'s No. 7 Moore is rigging and the Gulf Refining Co.'s No. 24 Bright-Penn is drilling deeper.

The total completions in the coastal region during the week number 27, of which 8 are dry and 2 salt water wells with 2 gassers, leaving 15 net producers. The new output aggregates 7,132 bbls. Five tests are bailing at the close of the week.

Orange Pool

The Brownie Babbittee Oil Co.'s No. 4 McLean in the old section of the Orange Pool was worked over and responded flowing 1,000 bbls. at 3,425 feet. The Rycade Petroleum Corp.'s No. 11-B Cow Bayou is a dry gasser at 4,325 feet. The Orange Petroleum Co.'s No. 1 Williams bailed salt water at 4,175 feet. The Peer Oil Co. abandoned No. 1 Mccom at 3,420 feet. The Supreme Oil Co.'s No. 4 Jackson is bailing at 4,275 feet.

Liberty County Pools

In the Hull Pool, the Gulf Production Co. completed No. 12 Scarborough on the north side early in the week at 3,300 feet. It started off flowing 1,800 bbls. The Gulf Production Co.'s No. 15 Phoenix, a workover, is bailing at 3,075 feet, and No. 64 Phoenix is making 125 bbls. at 3,325 feet. The Humble Oil & Refining Co.'s No. 6-A Abel, on the west side, is flowing 250 bbls. at 900 feet.

On the north side the Gulf Production Co.'s No. 17 Scarborough is rigging. No. 28 Morris-Phillips, to the east, is rigging. The Yount-Lee Oil Co.'s No. 9 Stengler, is at 3,045 feet. On the northwest the Mecom Oil Co.'s No. 8 Taylor is sidetracking at 3,475 feet. The Humble Oil & Refining Co. has a location for No. 5 Merchant and The Texas Company's No. 10 Merchant is fishing at 1,750 feet. On the east side of the dome, the Republic Production-Houston Oil Co.'s No. 119 Dolbear is drilling below 1,975 feet. No. 120 is rigging to start drilling. No. 121 is showing gas and oil around 2,400 feet. No. 122 is at 2,255 feet. These are on the southeast part of the lease and working in towards the edge of the dome. To the southeast the Gulf Production Co.'s No. 65 Phoenix is drilling around 3,455 feet and No. 66 is at 3,465 feet with No. 67 rigging. On the south side the Humble Oil & Refining Co. is working over No. 2 Guedry. The Gulf Co.'s No. 16 Baldwin is around 3,232 feet and Empire Gas & Fuel Co.'s No. 18 Barngrover as 3,233 feet. On the southwest side The Texas Company-Vacuum Oil Co.'s No. 2 Hannah is rigging. The Texas Company's No. 1 Hannah is drilling at 3,090 feet.

On the west sile of the South Liberty Pool, across the Trinity River, the Humble Oil & Refining Co.'s No. 2 Welder is rigging. No. 1 Welder, which came in January 31 at 3,860 feet flowing 1,000 bbls. of 21 gravity oil, is now making about 100 bbls. per day. It is about 2 miles west of the original pool. Same company is rigging No. 1-B Duessen in the old pool on the southeast side.

The Harrison Oil Co. is rigging No. 2 Schlender on the southwest side of the old Dayton Pool.

Harris County Pools

At Pierce Junction the Rio Bravo Oil Co.'s No. 2-P Settegast came in Friday heading 300 bbls. at 4,675 feet with 75 feet of screen set. The gravity is 24.3 degrees Baume. It is on the west side of the dome and the deepest producer in the small pool. On the east side H. R. Cullen's No. 7 Howe is making 100 bbls. at 3,960 feet. The Navarro Oil Co.'s No. 2 Cain is deepening at 2,025 feet and the Gulf Co.'s No. 9 Taylor is rigging to drill deeper.

In the Goose Creek Pool the Gulf Coast Oil Co.'s No. 6 Galliard, a workover, abandoned in salt water at 1,524 feet.

The Gulf Production Co.'s No. 21 Beaumont is deepening at 3,500 feet. No. 5 Wright is doing the same at 2,000 feet. No. 8 state land is rigging to deepen. No. 11 Chapman-Bryan is drilling around 4,415 feet. No. 5 Hirsch is below 2,900 feet. No. 12 Galliard fee is at 3,734 feet. The Humble Oil & Refining Co.'s No. 9 Smith is deepening; No. 23 Peninsula is at 3,655 feet. No. 67 Smith is around 2,145 feet and No. 68 Smith is at 2,655 feet. The Gulf Coast Oil Co.'s No. 24 Galliard is deepening. The Sun Oil Co.'s No. 18 Bartlett-Smith is at 1,905 feet. The Powell Oil Co.'s No. 6 Bryan is fishing at 4,500 feet. The M. & B. Oil Co.'s No. 4 Scorregea is at 2,435 feet.

The Cardinal Oil Co.'s No. 1 Bender in the Humble Pool is pumping 50 bbls. at 1,100 feet.

Fort Bend County Pools

In the Blue Ridge Pool, the Gulf Production Co.'s No. 6 Luscher is drilling deeper at 3,655 feet. The Texas Company's No. 10 Robinson is drilling around 3,400 feet on the west side of the dome.

At Big Creek, the Gulf Co. quit No. 20 Davis in salt water at 3,750 feet, after working it over. Same company's No. 28 Davis is at 433 feet with No. 29 Davis rigging and No. 10 Wheat drilling around 3,065 feet.

At Orchard, a new dome, the Gulf Production Co.'s No. 2 Moore is drilling below 1,600 feet.

On the line of Fort Bend and Brazoria Counties, known as the Nash Dome, opened by the Rycade Petroleum Corp. January 3 with a 50-bbl. well initial output at 4,146 feet, the same company's No. 6 Nash is drilling at 2,317 feet and No 7 Nash at 1,715 feet. No. 2 Flessner is around 3,015 feet with a location made for No. 3. A derrick is standing for No. 2 Widsom. The original producer is No. 5 Nash. The location is about 7 miles east of Damon Mound and 13 miles north of West Columbia. The Humble Pipe Line Co. laid a line there from West Columbia.

Brazoria County Pools

At West Columbia The Texas Company is drilling No. 22 Arnold and the Hyde Production Co. No. 1 Masterson at West Columbia. No rigs are running at Damon Mound.

Hardin County Pools

The Kirby Petroleum-Capital Oil Co.'s No. 4 Hodges in the northwest deep sand extension of the Batson Pool, is a 90-bbl. producer at 3,600 feet. The gravity is 17 degrees Baume. The well is a disappointment. Last week a deep test was abandoned there at 4,260 feet. In the old section, the Gulf Production Co.'s No. 165 Wing is pumping 10 bbls. at 1,150 feet and the East Batson Oil Co.'s No. 12 state land will pump at 1,150 feet. The Ada Belle Oil Co. has a small pumper at 805 feet in No. 108 Bradley.

The Sterling Oil Co.'s No. 3 Hooks is shut down. The Gulf Production Co.'s No. 166 Wing is rigging.

In the Saratoga Pool the Fountain Production Co.'s No. 1 Pope-Ellis is drilling around 900 feet. The San Bernard Oil Co.'s No. 19 Hook, at 1,825 feet and the Rio Bravo Oil Co.'s No. 5 Fountain, is below 3,500 feet. The Vacuum Oil Co.'s No. 3 Teel, southwest of the pool, is drilling around 2,410 feet.

In the Sour Lake Pool the Lake View Oil Co.'s No. 46 Hardin is making 100 bbls. at 1,340 feet. J. A. Jackson's No. 14 Carpenter is pumping 5 bbls. at 1,475 feet. The Humble Oil & Refining Co. abandoned No. 2 Myers at 1,150 feet. The Minor Oil Co.'s No. 76 fee is bailing at 1,140 feet.

The Lake View Oil Co.'s No. 47 Hardin is drilling around 655 feet. The Texas Company's No. 230 fee is rigging. The Humphrey Corp. is rigging No. 1 Griffith, with locations for Nos. 2 and 3. The Humble Co. has a location for No. 3 Myers. The Yount-Lee Oil Co.'s No. 5 Gilbert is around 3,100 feet.

Other Pools

At Spindletop, the Gulf Production Co.'s No. 221 Gladys is a 100-bbl. well at 860 feet.

Same company's No. 222 Gladys is rigging. The Lillian Oil Co.'s No. 3 Terrell is at 945 feet. The Yount-Lee Oil Co.'s No. 3 Gladys on the north side is around 2,135 feet and No. 4 McFadden in the deep sand section on the southeast side is drilling around 3,405 feet.

At High Island, Galveston County, the Transbay Oil Co.'s shallow test in No. 15 Carter on the dome was abandoned at 190 feet. The Gulf Production Co.'s No. 4 Smith on the south side and between the salt core and the Gulf of Mexico, is waiting on cement to harden with casing set at 3,250 feet. No. 5 Smith is rigging. The Sun Oil Co. has a derrick up for No. 7 Cade. No. 8 Cade is drilling at 1,345 feet and No. 10 is rigging.

The Rycade Petroleum Corp. set 12-inch casing at 870 feet in No. 1 Kountz on the north side of the Markham Pool, Matagorda County.

Coastal Wildcats

In Chambers County, W. C. Moore's No. 1 Drought is drilling around 1,100 feet.

In Brazoria County, Hamm & Co.'s No. 2 Chester at Bryan Heights is a derrick. The Roxana Petroleum Corp.'s No. 1 Kropp, Hinkle's ferry on the Brazos River, is bailing at 578 feet. No. 1 Clements state prison farm is drilling around 4,300 feet. No. 2 Allen is at 1,800 feet. These are on one big block of acreage.

In Fort Bend County the Gulf Production Co.'s No. 8 Davis at Long Point is drilling at 3,615 feet. Neilan, Inc.'s, No. 2 Fredericks is idle.

In Harris County The Texas Company's No. 6 Warren ranch, Hockley Dome, as around 3,240 feet and No. 7 is below 1,565 feet. Armstrong and others' No. 2 fee is a location between the San Jacinto battlefield and Peggy Lake.

In Jefferson County, Gulf Production Co.'s No. 1 Burrell, Fannette Dome, is drilling around 3,340 feet. It is 1,000 feet east of No 5 Thomas, recently abandoned. Same company is rigging No. 2 Bordages there. At Big Hill Dome, the Houston Oil Co.'s No. 1 Sun-Dyson is drilling around 3,100 feet

In Sabine County the Carter Oil Co. of Texas is rigging No. 1 American Lumber Co. lands.

In Waller County A. L. Maxwell has started drilling No. 1 on a block of 5,000

(Continued on Page 128)

IMPORTANT EAST CENTRAL TEXAS TEST SETS CASING AT 2,784 FEET

CORSICANA, Tex., Mar. 27.—The test known as Collington and others' No. 3 Clapp, on the Jewell survey, Cherokee County, which is being financed by the Humphreys Corp., has set 8-inch pipe at 2,784 feet. This is the most important test in the East Central Texas area. Collington and others, about 10 months ago, started a test on the same farm which showed oil some place between 2,800 and 3,200 feet. The hole was in bad condition and the log was kept in such a careless manner that no definite information concerning depths at which sands lay could be learned. The hole was finally junked, but the showing was such that there was considerable leasing in the county. When the Humphreys organization took over the Collington block of leases and announced that it would make a thorough test, the prices of acreage mounted at once until they reached as high as $100 an acre in that absolutely wildcat region. The Gulf Production Co., Pure Oil Co. and Humble Oil & Refining Co. were among those which bought protection leases. Whatever the fate of the present test the Humphreys Corp. will drill at least one more well on the block.

Geologists for the Gulf Production Co. are working in the neighborhood of Italy and Fort Calm, in Ellis County. The Simms Oil Co. is drilling No. 1 Griffith on the De La Pena survey in Ellis County and was last reported below 2,100 feet.

All the new work started recently has been in Limestone County. The Pure Oil Co. is drilling a shallow test on the Lindley farm, McNulty survey; Magnolia Petroleum Co. was below 1,250 feet in No. 8 Desenburg, Varela survey; Reiter-Foster Corp. and Lucas & Lewis, who junked and abandoned No. 1 De-Long on the Varela survey at 2,250 feet, after a long fishing job, have started No. 2. Swearingin & Collicotte have made a location for No. 1 Locke, Thompson survey, which is in the center of a block of acreage owned by the Humble Oil & Refining Co., which it will test.

The recent continued drain on stocks of crude in the East Central Texas fields has emptied a considerable number of large steel tanks. The Magnolia Petroleum Co. has cut down two or three big tanks which it has moved to the Laredo Field and is contemplating the dismantling of others for removal to more strategic locations in Texas. In the month of February over 1,250,000 bbls. were taken from storage in Mexia and Powell. It is thought quite probable that more than a few of the tanks now in this field will be moved to the Panhandle district this year.

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BETTER BE SAFE THAN SORRY

Much Activity at Lisbon and Urania

These Areas Continue to Be Center of Interest in Louisiana-Arkansas Territory. New Pipe Line Finished

By James H. Dameron

SHREVEPORT, La., Mar. 29.—With the entrance of the first week of spring, production and drilling both increased in the north Louisiana and south Arkansas fields which finished the week with several developments of importance.

Lisbon, which was slow in getting a fast drilling campaign started, recorded the best week in its history. Several lease trades in which stiff prices were paid were reported, another pipe line was extended into the field and plans for another gasoline plant for Lisbon were announced.

The Atlantic Oil Producing Co. ran a 4-inch line into the field from the McElroy farm near Smackover and posted prices for El Dorado crude to conform with the established market in that area. The Atlantic's line makes the third pipe line for Lisbon and the company is active in purchasing crude in the new field. The Shreveport-El Dorado Pipe Line Co. was the first in the field and the Lion Oil & Refining Co. is the other pipe line company purchasing crude there.

The Atlantic was one of the first of the major operators to go into the Lisbon area after it became a promising territory. It is interested in two leases which are now producing approximately 1,000 bbls. daily.

To Build Gasoline Plant

The Natural Gas & Fuel Corp. announced last week its intention of building a gasoline plant in Lisbon at an early date. Recently the Henderson company announced its intention of building a gasoline plant there and construction work on it is scheduled to start about April 1.

The second plant will be built in the heart of the field. Officials announced they were unprepared to announce the size and cost of the plant. However, actual construction work is expected to be started within the next two weeks and completion is expected 60 days later.

The sharp increase in field operations prompted the Natural Gas and Fuel Corp. to lay its second gas line to the field. The first was a 4-inch line and the second is a 6-inch line running from the Norphlet sector in Section 17-16-15, assuring a good fuel supply for the new operations.

W. C. Miles and associates' No. 1 Miller, NE cor. SE NE, Section 35-17-16, the deep sand extension of the El Dorado Field, failed to excite the fraternity. It is estimated the well will be completed for a 20 or 25-bbl. pumper. It is about three-quarters of a mile from deep sand production.

The heavy rainfall in both states failed to force many of the drilling operations to shut down. Only a few tests were reported because of high water. However, the rain had its effect on the roads and made transportation difficult.

Urania One Year Old

Urania, still the most active area in the district, but not so fortunate as Lisbon in getting pipe lines, celebrated its first birthday. To observe the anniversary the best well to be completed during the week was brought in March 23, Urania's birthday. By a strange coincidence the well came in almost to the hour that the discovery well came in a year ago. The well is G. W. Zeigen and associates' No. 3 Urania, Section 18-10-2e, a diagonal southeast offset to the discovery well. It is flowing 400 bbls. daily through a 2-inch choke and the oil is being turned into earthen storage.

Urania slumped in the number of completions when compared to its last week's record but the initial production from the new completions eclipsed that of last week. Its daily production continues to increase.

At the end of the week, the field had 45 tests drilling, 12 wells waiting for standard rigs so they could be completed, 7 rigged up and 17 derricks.

The razing of a business block in Tullos by fire last week made the congested housing problem in that boom town more serious. Three hotels and two restaurants were destroyed by the fire. Lack of fire-fighting equipment prevented volunteer firemen from checking the blaze until it had destroyed the entire section of frame buildings.

Pine Island Tests

The deep tests in the Pine Island area are getting to an interesting depth and the history of two of the state's deep tests is expected to be written during the next week. The Ohio Oil Co.'s No. 18 E. K. Smith, Section 12-21-15, which missed the big gas sand, is coring every foot of the way down and Saturday morning a light showing of oil was revealed in a lime formation at 3,848 feet. The Cotton Valley deep tests are getting to an interesting depth and the Ohio is starting another in that area to be drilled deep.

The most recent to announce intention of deep drilling is the Gilliland Oil Co. It will sink a Trinity sand test in the heart of the Haynesville Field. It is reported W. R. Ramsey of Oklahoma City, Okla., is interested in the test but the report was not verified.

The test will be Gilliland's No. 10-B G. W. Taylor, Section 14-23-8, and a derrick is being built for it now. The discovery well of the Haynesville Pool was drilled in Section 14.

Another test that has been started drilling and that will be watched with interest is B. L. Spell's No. 1 Thigpen & Herold, Section 10-21-16, in the Caddo Field. It will be drilled to the chalk rock which is expected to be found around 1,600-1,700 feet.

In that immediate vicinity comprising about four sections there are no wells producing from that horizon. Some time ago when Spell was pulling casing in abandoned wells he was shooting the casing around the 1,600-foot level. In several wells the shooting caused a flow of oil, it is reported.

A short while later he blocked several leases in that area and started drilling at his No. 1 this week.

Lisbon's rapid climb in the production column during the past week gave the combined production of the two states a 2,600-bbl. increase over last week which also showed a gain.

Despite the steady gain of Urania, Louisiana's output continued on its gradual descent. DeSoto and Red River was the only other area in the state to show an increase. Bellevue was at a standstill and all other fields declined.

Smackover heavy oil increased while the light oil field's output slumped along with Stephens' production. El Dorado and Nevada both recorded small increases.

Production by Fields

North Louisiana

Bellevue	2,485
Caddo light	8,680
Caddo heavy	2,140
Cotton Valley	8,240
De Soto and Red River	3,850
Elm Grove	640
Haynesville	10,440
Homer	5,860
Urania	6,000
Total	48,335

Arkansas

Smackover heavy	134,560
Smackover Light	17,635
El Dorado	7,605
Lisbon	4,665
Nevada	2,060
Stephens	1,520
Total	168,045
Total both fields	216,380
Total last week	213,720
Increase	2,660

Lisbon Has Big Week

Completing the best week in its history, the Lisbon Pool, which apparently is destined to run due north and south and cover only a small area, added 3,652 bbls. of new production to its output with the completion of 11 new wells.

The biggest producer and the best well to be completed thus far in that area was Wingfield and associates' No. 2 Slaughter, Section 9-17-16, which is making 1,000 bbls. daily by the gauge in sand at 2,078-93 feet. Trailing the Wingfield well was Olvey & Jones' No. 4 Slaughter, Section 9-17-16, which is producing 807 bbls. daily in sand at 2,079-99 feet.

Three 400-bbl. wells were finished in that area last week, Marine Oil Co's. No. 2 Slaughter, Section 9-17-16, in sand at 2,106-26 feet; Miller & Cottingham's No. 1 Slaughter, Section 9-17-16, in sand at 2,077-97 and Natural Gas and Fuel Co's. No. 1 Andress, Section 16-17-16, in 10 feet of sand topped at 2,126 feet.

Marine's No. 4 Slaughter, Section 9-17-16, was finished in sand at 2,074-2,103 feet and is flowing 150 bbls. daily. Natural Gas & Fuel Co's. No. 2 Andress, Section 16-17-16, is producing 160 bbls. from sand at 2,117-36 feet. Olvey and Jones' No. 2 Slaughter, Section 9-17-16, was finished in sand at 2,082-2,100 feet and is flowing 125 bbls. daily through 2-inch tubing. Lion Oil & Refining Co's. No. 2 Goodwin, Section 16-17-16, is also flowing 125 bbls. daily from sand at 2,086-2,102 feet.

Simms Oil Co. added another to its string of producers in that area with the completion of No. 3-A Dumas, Section 9-17-16 for a 65-bbl. well in sand at 2,073-99 feet. To the southeast of the heart of the pool, J. D. Renolds' No. 2 Dumas, Section 10-17-16, was finished in sand at 2,150-56 feet and is pumping 20 bbls. of fluid daily, 20 per cent of which is salt water. It is the first well in Lisbon to be menaced by salt water.

To the northeast and in Section 10-17-16 salt water is encroching at Coate & Sowell's No. 1 Dumas. It is 22 feet in sand topped at 2,075 feet and has 500 feet of oil in the hole with salt water showing. The well is waiting for a standard rig.

Other Lisbon Operations

Atlantic's No. 2 Andress, Section 16-17-16 is waiting for cement to set at 2,085 feet. Foster and associates' No. 1 Dumas, Section 9-17-16, is drilling at 150 feet. Lion Oil & Refining Co. cemented 6⅝-inch casing at 2,083 feet at No. 1 Goodwin, Section 16-17-16, and No. 3 Goodwin is a derrick pattern as is No. 4.

Magnolia's No. 1 Dumas, SW cor. SE NE, Section 9-17-16, is drilling. Magnolia's No. 9 Slaughter, same section is

UNFINISHED TESTS IN TURNER VALLEY BEING RESUMED BY CANADIAN FIRMS

By Victor Lauriston

CHATHAM, Ont., Mar. 27. — In the Turner Valley Field southwest of Calgary, official figures of the production of Royalite Oil Co.'s No. 4, naphtha gusher, show a production for February, 1926, of 15,621 bbls., compared with 15,556 bbls. in December and 20,007 bbls. in January. The performance compares favorably with preceding months. The total production of the well since May 31 last was 136,699 bbls. In addition to February production from the Royalite No. 4, the Royalite absorption plant shipped 27,000 imperial gallons of gasoline. Some 10,000,000 feet of gas per day passed through the Royalite scrubbing plant, of which approximately 7,000,000 feet was delivered to consumers of the Canadian Western Natural Gas Co. in Calgary and elsewhere and some 3,000,000 feet of the Imperial Oil Ltd., refinery at Calgary.

A meeting of the shareholders of the Royalite Oil Co. will be held at Calgary on April 17 to consider a proposal to convert the stock of the company, at present consisting of 40,000 shares of $25 par value, into 400,000 fully paid no-par value shares. The stock has recently gone up from approximately $285 to $425 a share.

With the advent of spring, activity is steadily increasing in the Turner Valley Field. Recent developments include the taking over by new interests of a number of unfinished tests dating back to the days of the first Calgary boom; and some of these have already resumed operations.

McLeod Oil Co.'s No. 2, Section 1-20-3w5, is setting 8-inch casing around 3,357 feet to shut off the gas and oil in order to drill into the deeper horizon. The well at this depth has been making about 1,500,000 to 2,000,000 feet a day of wet gas, with a little light oil; but it will have to drill between 300 and 400 feet more to get the Royalite sand in the Madison limestone. McLeod's No. 1 in the same section was finished at 2,400 feet with a small pumping production.

New Operations

Great West Oil Co., southeast quarter Section 7-20-2w5, has a derrick up and boiler on the ground, and drilling equipment ordered. Dallas Oil Co.'s No. 1, LSD 11, Section 20-19-2w5, has timbers on the site for the derrick and machinery en route from Montana. The test will start with a 20-inch hole. F. H. Stover, of Chatham, who has drilled in the Tilbury, Fort Norman and Many Island Lake Fields, will have charge of the drilling. In addition to the No. 1 test on its 380 acres in the Turner Valley Field, this company will drill one or more tests in outlying territory, its holdings including acreage in the Jumping Pound, Morleyville, Rice Creek, Moose Mountain and Monarch districts. British Dominion Oil Co. has located its No. 1 test on LSD 4, Section 5-20-2w5, and is bringing in equipment for a test. Home Oil Co., LSD 10, Section 2-19-2w5, has a derrick up and machinery on the ground; the test is expected to spud in early in April. This company is financed largely by Vancouver, B. C., capital, W. C. Shelley being president and G. S. Harrison secretary. Sentinel Oil Co. has ordered a heavy duty standard rig for a test.

Dalhousie Oil Co.'s No. 3, LSD 10, Section 13-20-3w5, which is now being deepened from the original depth of 3,208 feet, has made 20 feet of hole since last reports. No. 3 is the old Alberta Southern's No. 1 well, which had a small pumping production of light oil around 3,000 feet. Dalhousie No. 1, formerly South-

(Continued on Page 124)

The High Cost of Swab Rubbers Overcome

The necessity of frequently replacing ordinary swab rubbers coupled with the fact that the cost of rubber has vastly increased has made it absolutely necessary for oil well operators to seek new ways and means of lowering operating costs.

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drilling at 1,150 feet. Marine Oil Co's. No. 3 Slaughter, same section is a rig. Miller & Cottingham are building a derrick in the SW NW NE, Section 9 for No. 2 Slaughter. Natural Gas & Fuel Co. has rigs up for Nos. 3 and 4 Andress in Section 16. Oil Fields Corp. cemented the 6-inch at 2,075 feet at No. 1 Dumas, Section 10-17-16. Olvey and Jones' No. 1 Graham, Section 16-17-16, is a rig and their No. 3 Slaughter in Section 9 has been rigged up ready to drill.

Owens and associates' No. 1 Porter, Section 4-17-16, is drilling at 2,300 feet and their No. 1 Slaughter, SE SW SW, Section 4-17-16, is a rig. Pure Oil Co's. No. 1 Dumas, Section 9-17-16, was drilled to 2,105 feet and the 2-inch tubing is being set with a packer in 36 feet of sand. A derrick pattern is being built for the Pure's No. 2 Dumas. Reliance Drilling Co., has a rig ready for its No. 1 Dumas, NW SW SE, Section 10-17-16. J. D. Reynolds' No. 3 Dumas, Section 15-17-16, is shut down with 300 feet of oil in the hole from sand shale at 2,075-2,105 feet and waiting for a standard rig. The 6-inch was cemented at 2,115 feet at Reynold & Marr's No. 1 Mooty, Section 15-17-16.

Rovenger Oil Corp.'s No. 3 Goodwin, Section 16-17-16, is drilling at 2,046 feet and No. 4 Goodwin is boring away for the sand at 1,475 feet. A derrick is standfor Rovenger's No. 5 Dumas, SW SE SW, Section 9-17-16. Six and five-eighths-inch casing was cemented at 2,062 feet at Simms' No. 4-A Dumas, Section 9. Smith Oil Corp's. No. 1 Dumas, SW SW NW, Section 10-17-16, is drilling at 810 feet. Southern C. O. P. Co., has a derrick standing in the SW cor. Section 3-17-16 for No. 1 Dumas.

Winfield and associates' No. 1-A Dumas, formerly carried as No. 2, is waiting for cement to set at 2,060 feet. A rig is standing for No. 2-A Dumas, SE cor. SW NE, Section 9. Same operators' No. 3 Slaughter in Section 9 is rigged up and ready to start drilling and a derrick is standing for No. 5. A derrick is being built for No. 7, NW south half NE SE and No. 6 has been rigged up. No. 1-A Slaughter in Section 9, is drilling at 1,530 feet. The 6-inch casing was cemented at 2,061 feet at the Woodley Petroleum Co's. No. 1 Dumas, Section 9-17-16.

Norphlet Area

Two completions were recorded in the Norphlet area. Bailey & Trimble's No. 3 Lawton, Section 10-16-15, was finished in sand at 10-16-15, making 8,000,000 feet of gas and 50 bbls. of oil. Sam Richardson's No. 5 Lawton is making 8,000,000 feet of gas and 80 bbls. of oil from sand at 2,593-2,616 feet.

Six and five-eighths-inch casing was cemented at 2,480 feet at Broderick & Calvert's No. 5-B Murphy, Section 8-16-15, and No. 6-B Murphy is drilling at 2,330 feet. G. J. Childs No. 2 fee, Section 8-16-16, is drilling at 750 feet. Clark & Melat's No. 1-A Saxon, Section 4-16-16, topped the red bed at 2,889 feet and is drilling in red shale at 2,933 feet.

Eason & associates' No. 7 Murphy, Section 15-16-15, is drilling at 2,520 feet. Their No. 3 Palmer, Section 9-16-15, is shut down at 2,500 feet. El Dorado Union Oil Co's. No. 1 Ennis, Section 23-17-16, is drilling in rock at 2,536 feet.

Federal Petroleum Co., is arranging to deepen No. 6-B Lawton, Section 10-16-15, and is drilling at 2,470 feet at No. 2-B Wells, same section. Fergerson and associates No. 2 Howard, Section 7-16-16 is drilling at 2,570 feet. Grimes & Jones are drilling at 1,100 feet at No. 1 Lovett, Section 6-18-14. Gulf Refining Co's. No. 17 Alphin, Section 2-16-15, is drilling at 2,508 feet. Gulf Co. has started drilling at No. 2 Clawson, 200 feet south and east of the center of Section 14-16-15. Gulf Co's. No. 2 Fagg, Section 7-16-16, is standing with 225 feet of oil in the hole from sand at 2,670-74 feet waiting for a standard rig. Gulf Co's No. 37 Hardy Murphy, SE cor. Section 5-16-15, is drilling at 735 feet and its No. 3 McMullen, Section 1-16-16, is drilling at 1,785 feet.

Hickman and associates drilled to 2,755 feet and then cemented the 6-inch at 2,748 feet at No. 4 Hays, Section 21-16-15. Humble Oil & Refining Co's. No. 2-B Lawton, Section 7-16-15, is drilling at 2,495 feet. Six-inch casing is being set at 2,043 feet at H. L. Hunt's No. 1 Swilley, Section 28-16-16. A derrick is standing in the NE NE NW, Section 21-17-16 for Imperial Oil & Gas Co's. No. 1 Goodwin. Formations are being cored at 2,679 feet at E. M. Jones' No. 4 Murphy, Section 17-16-15. Jones is arranging to deepen No. 2 Murphy, same section which was completed last December for a 200-bbl. producer at 2,480 feet. His No. 9 Murphy, same section, is waiting for a standard rig. There is 1,800 feet of fluid in the hole, 75 per cent salt water. The liner was set with a lead seal at 2,686 feet.

W. R. Keever's No. 6 Murphy, Section 8-16-15, is a rig. His No. 5 Sanford, Section 17-16-15, is drilling at 1,000 feet. J. P. Kelly's No. 1 Mitchell, Section 20-17-16, is a rig. High water forced a shut down at 2,220 feet at Kennebrew and associates' No. 7 Williams, Section 3-16-15. Louisiana Oil Refining Corp. is fishing for casing at 2,749 feet at No. 4 Hodges, Section 7-16-15. Lion Oil & Refining Co. have built a derrick 800 feet north and 300 feet east of the center of Section 10-16-15 for No. 8 Flenniken. Long and associates have staked a location in the CNL E half SW NE, Section 17-17-16 for No. 1 White. Magnolia drilled to 2,649 feet and then cemented the 4½-inch casing at 2,638 feet at No. 3 LeCroy, Section 17-16-15.

Mazda Oil Corp's. No. 3-H Lawton, Section 10-16-15, is drilling at 2,600 feet. In the SW NE NE, same section, Mazda's No. 6-R Lawton, is drilling at 700 feet. McGaha and associates have temporarily abandoned their No. 1 Haney, Section 11-17-16, at 2,536 feet.

Apparently the deep producing area is being extended about a mile west by Miles' No. 1 Miller, Section 35-17-16. The well is waiting for a standard rig and has 300 feet of oil in the hole and 1,200 foot of water from sand at 2,930 feet. The oil tests 31.7 gravity. C. H. Allison's No. 1-A Fitzgerald, Section 17-18-15, was abandoned at 3,030 feet with casing in the hole.

Moco Oil Corp's No. 6 Flenniken, Section 5-16-15, is waiting for a standard rig and has 600 feet of oil in the hole from sand at 2,355-67 feet. Murdock and associates are setting the 5-inch at 2,527 feet and No. 2 Vestal, Section 17-16-15. Natural Gas & Fuel Co. is arranging to deepen No. 3-C Murphy, Section 8-16-15, which was completed last September for a 20,000,000 dry gasser at 2,618 feet.

Owens and associates have temporarily abandoned No. 2 Parks, Section 32-16-16 at 2,153 feet. Salter water was cased off at Leo P. Pukrul's No. 2 Smith, Section 17-16-15, at 2,380 feet and the test is drilling ahead at 2,410 feet. Pure Oil Co's. No. 6 Bilyew, Section 8-16-15, is drilling at 2,232 feet. Pure Co's. No. 9 Friend, Section 6-16-15, is setting the 12-inch at 159 feet. Four-inch casing was cemented at 2,629 feet at Simms' No. 7 Cook, Section 16-16-15. Sinclair Oil & Gas Co. cemented 6-inch casing at 2,390 feet at No. 8 Flannigan, Section 6-16-15.

Tubing and rods are being run to 2,214 feet at the Standard's No. 4 Burns, Section 31-17-15. Sun Oil Co's. No. 8 Hatfield, Section 6-16-15, is drilling at 516 feet. The casing is being tested at Sun Co's. No. 2 McClanahan, Section 1-16-16. Arrangements are being made to set 6-inch at 2,443 feet at Sunny Jim Oil Co's. No. 7 Flenniken, Section 9-16-15. The Texas Company's No. 2 McClanahan, Section 12-16-16, cored oil sand at 2,672 feet.

Unity Petroleum Co's. No. 8-A Bilyew, Section 8-16-15, is drilling at 1,570 feet and No. 9 is drilling at 2,360 feet. The 4½-inch casing collapsed after being set at 2,596 feet at Unity Co's No. 2 Lawton, Section 10-16-15. It is being pulled and 4-inch casing will be lowered. Williams and associates' No. 2 Goodwin, Section 16-16-14, is drilling at 190 feet. Wingfield and associates' No. 1 Cruse, Section 27-17-16, is shut down for orders at 2,166 feet. Woodley Petroleum Co's. No. 4 Bilyew, Section 8-16-15, is drilling at 2,380 feet.

Ouachita County

Ouachita County finished the week with only one completion. That was the Humble Oil & Refining Co's. No. 3 Laney, Section 31-15-15, which was completed for a 100- bbl. well on the pump from sand at 2,400-02 feet.

Calcord and associates are setting the 5 3/16-inch casing at 2,601 feet at No. 5 Laney, Section 31-15-15. H. M. Harrell's No. 1 Moline, Section 32-11-17, is drilling in shale at 900 feet. Humble's No. 11-B Arnold, Section 26-15-16, is coring formations at 2,315 feet.

Magnolia Petroleum Co. has shut down at 1,920 feet at No. 12 J. Goodwin, Section 5-16-15 to repair the rig. Magnolia Co's No. 2 Murphy, Section 30-15-16 set 10-inch casing at 202 feet and the 6⅝ is being cemented at 2,358 at Marine's No. 10 Umsted, Section 5-16-15. A Meek's No. 3 Lagrone, Section 36-15-17, is drilling at 1,715 feet. Ohio's No. 7 Goodwin, Section 29-15-15, is drilling at 2,516 feet.

J. D. Reynolds' No. 1 Smith, Section 13-15-17, tested salt water at 2,255 feet and is shut down for orders. Six-inch casing was cemented at 2,356 feet at Roxana Co's. No. 5 Snyder, Section 34-15-15. Simms Oil Co's No. 5 T. Murphy, Section 29-15-15, is drilling at 1,470 feet. Simms' No. 9 Reynolds, Section 32-15-15, has 800 feet of oil in the hole from sand at 2,586-88 feet and is waiting for a standard rig. Sinclair's No. 9 Flannigan, Section 6-16-15, is drilling at 2,290 feet.

A test at 2,581 feet revealed a show of oil and gas at Southern C. O. P. Co's. No. 6 Joyce, Section 34-15-15, and the liner is being sidetracked at 2,591 feet. Southern Co's. No. 4 Murphy, Section 4-16-15, has 1,000 feet of oil in the hole from sand at 2,352-53 feet, and is waiting for a standard rig. Southern Co's. No. 4 Umsted, same section, cemented the 6-inch at 1,901 feet. Sunny Jim Oil Co's. No. 3 Laney, Section 36-15-16, is drilling at 400 feet. The Texas Company's No. 11 Johnson, Section 3-16-15, has 450 feet of fluid in the hole from sand at 2,545-52 and is running the sand pump.

Unity Petroleum Co. is arranging to test sand at 2,393-96 feet at No. 9 Umsted, Section 33-15-15. Woodley Petroleum Co's. No. 4-A Umsted, Section 4-16-15, is drilling at 550 feet. Buffalo Oil Co. cemented the 6-inch at 1,512 feet at No. 2 Davis, Section 22-15-19. Equity O. & D. Co. is setting the liner to test broken sand at 2,175 feet at No. 1 Morgan, Section 27-15-19. While bailing to test at 1,476 feet at J. D. Reynolds' No. 1 Thompson, Section 22-15-19, the bailer was lost. The test was bailed down to 200 feet off bottom showing a large quantity of salt water with a show of oil.

Columbia County

Haynesville Trust Co. has a rig up in the NE NW, Section 18-19-19, for No. 1 Wingfield. Hude & Aarnes' deep test, No. 2 Brown, Section 13-15-20, is drilling in a lime formation at 3,255 feet. Kentucky-Arkansas Petroleum Co.'s No. 1 Peter Doss, Section 29-19-20, is drilling through rock at 1,625 feet. Magnolia Co's. No. 1 Rhinehart, Section 36-15-120 is bailing to test sand at 2,196-2,206 feet.

Nevada County

Bemis and associates' No. 1 J. D. Ellis, Section 2-14-21, is being bailed to test sand at 1,146-53 feet. Humble Co's. No. 2 Ellis, Section 2-14-21, is waiting for a standard rig and has 800 feet of oil in the hole from sand at 1,230-33 feet. The cement plug at 1,162 feet is being drilled out at the Humble Co's. No. 2 Graves,

(Continued on Page 148)

MEXICO'S ONLY PRODUCER 150 BBLS. OUT OF WEEK'S EIGHT COMPLETIONS

By George Blardone

TAMPICO, Mex., Mar. 26.—Mexican fields contributed nothing in the way of pay completions the past week to contribute to the gaiety or interest of the petroleum world. Of eight completions only one can be placed in the production column and its contribution, at best, is 150 bbls. This well is Mexican Sinclair Petroleum Corp.'s No. 18 Tananturo, in the old Panuco Field, which, at 1,885 feet, is rated as above.

The failures, all of which were in the northern fields, follow: La Corona Petroleum Co.'s No. 178, Lot 4 Cacalilao, drilled into salt water at 2,000 feet. Mexican Sinclair Petroleum Corp.'s No. 11, Lot 1 Camolote, Panuco, is a dry hole at 2,033 feet. The Texas Company's No. 6 Isleta finished a duster at 2,415 feet. Transcontinental Petroleum Co.'s No. 259, Lot 4 Cacalilao sector, and its No. 58 Paciencia, just north of Cacalilao, are both dry holes at 2,220 and 2,370 feet, respectively. In Tamaulipas, American International Fuel Co.'s No. 21 Los Esteros, is dry at 3,400 feet. In the Chapacao part of the Corcovado sector, Mexican Gulf Oil Co.'s No. 35 Chapacao drilled into 25,000 bbls. of salt water at 2,205 feet.

Mexico's Total Production

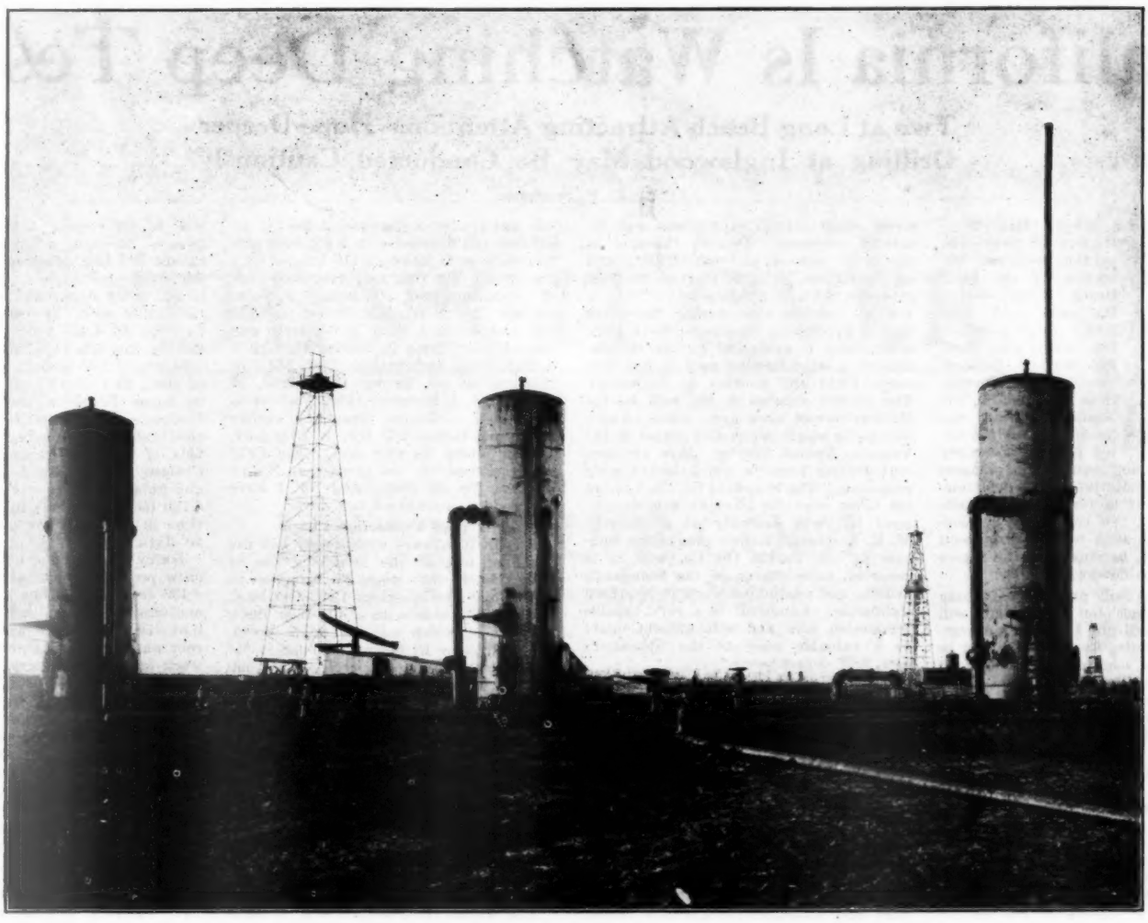
The total production of petroleum in Mexico, of which some account can be arrived at, from the beginning until the end of 1925, can be placed at 1,358,984,458 bbls. This volume can be divided as follows: northern fields, or heavy oil district, 491,595,190 bbls.; south fields, or light oil district, 864,886,488 bbls.; Isthmus of Tehuantepec, 2,502,780 bbls. The total has been noted.

At Panuco

Drilling operations in the Panuco Field as the week ended are best reflected as follows: In the old Buena Vista tract what looks like it might be a surprise well is Vera Cruz Mexican Oil Co.'s No. 9 Buena Vista that has cemented 8-inch casing at 1,512 feet in the gray San Felipe lime. Here, this test is making a lot of gas and spraying oil. It has the earmarks of a real well. Of course, this Buena Vista is one of the oldest sectors of the Panuco Field, lying, as it does, on the north bank of the river, across from the town of Panuco, and so on at once east and below.

Other Panuco operations, of a nature more routine, are best described as follows: Corona company's No. 13-A La Polla is 485 feet in blue shale; Credito Petrolero's No. 1 Piedras is fishing bit at 1,860 feet in gray lime; No. 8, same place, is in gray lime at 1,480 feet; No. 9, same place, rigging; No. 29, Lot 31, W. Maguabes, down 1,070 feet, repairing boilers. East Coast Oil Co.'s No. 35, Laguna Milpa is rigging; No. 54-A, same place, is in gray shale at 1,350 feet; No. 57, same place, is in the white lime at 1,955 feet; Nos. 58 and 59 are derricks; No. 458 Ingenio is down 1,775 feet in the gray lime; No. 230 Halcon is in gray lime at 1,940 feet. Empire Gas & Fuel Co.'s No. 16, Lot 11, W. Maguabes, is in gray shale at 1,095 feet. Loya and others' No. 2 Tampalache is at 150 feet in shale. Mexican Sinclair Petroleum Corp.'s No. 19 Tanunturo is in the Tamasopo at 1,925 feet, with the hole full of oil; No. 12, Lot 1 Camalote, is in lime and shells at 1,235 feet; No. 8 Gutierrez is in brown lime at 1,940 feet; Mexican Gulf Oil Co.'s No. 12 Flores cemented 8-inch casing at 1,226 feet in gray lime; No. 13, same place, also cemented 8-inch casing in gray lime at 1,260 feet. Sol Oil Co.'s No. 2 Etienne is in gray lime at 1,525 feet; No. 6, same place, is a derrick. Transcontinental Oil Co.'s No. 11 Piedras cemented 10-inch casing in gray shale at 600 feet; No. 23, Lot 1, Tanchicuin is at 1,460 feet in gray lime; No. 9, Lot 14, same place, is in shale at 420 feet; No. 12, same lot, cemented 12-inch casing at 600 feet in

(Continued on Page 130)



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California Is Watching Deep Tests

Two at Long Beach Attracting Attention. Hope Deeper Drilling at Inglewood May Be Conducted Cautiously

By L. P. Stockman

LOS ANGELES, Calif., Mar. 27.—There were 20 wells put on production in the northwest extension of the Long Beach Field during the past week and, while there were a few fairly good flowing wells finished, most of the completions were small. The production peak was reached during the latter part of February and the increasing number of pumpers being finished indicates a gas depletion, which will result in fewer flowing wells as time goes on. Of course the development of a deep sand will upset present calculations but, barring this, the future tendency will be downward.

The decline in daily production at Long Beach each week for some time will probably be small due to the large number of wells coming in, but it should be consistent. As soon as the amount of drilling falls off the drop will be larger due to the smaller number of completions and normal decline in settled production. The United Oil Co.'s deep test on the Taylor property and the outcome of No. 1 Bixby, of the California Petroleum, will be of paramount interest to those watching for possible disturbing factors.

The outlook at present is fairly promising so far as Long Beach is concerned, but one must watch developments in the Inglewood Field very closely if any amount of deep drilling is started, for this area might easily result in an increase in light oil production. While commenting on the possible development of the deep zone at Inglewood, it is interesting to note that the Petroleum Securities' No. 9 Cone, which has been carried down to the deep sands, was swabbed in wet this morning and will require another cement job. The Associated is already deepening one of its former upper zone producers, No. 2 Vickers, but it is not yet deep enough to pick up the lower zone believed to have been proven up by No. 9 Cone of the Petroleum Securities, No. 9 Rindge of the Shell and No. 1 on Vickers lease No. 3 of the Standard. The Shell is the only one of these companies which has secured deep production to date and the fact that its No. 9 Rindge is yielding 25.4 gravity oil is considered fairly conclusive proof that a deep zone does exist. It is hoped that operators will formulate another gentlemen's agreement which will tend to restrict or hold up unnecessary drilling.

The General Petroleum, as a result of negotiations opened previous to the tentative merger agreement between this company and the Standard of New York, is making preparations to take over Walter H. Fisher's productive and potential property in the Long Beach and Rosecrans Fields. The consideration involved is approximately $3,000,000, for which the General Petroleum secures 12 producing wells and three drillers in addition to the acreage mentioned. Fisher's wells are producing at the rate of about 3,500 bbls. daily, most of the oil being a high quality and quite desirable for refining purposes.

A. J. Delaney also put over a fairly big deal during the past week when he agreed to take over the wells and equipment on J. E. O'Donnell's 20-acre Barry lease in the northwest extension of the Long Beach Field. Delaney is by far the largest single operator in the extension and, while many of those individuals and companies drilling in this area will end up with a red item in the ledger, his wells should pay out due to the comparatively small capital expenditure and favorable overhead. Delaney, because of the large number of wells drilling and on production, is in a position to keep expenses down to a minimum.

That developments during the week from a production standpoint were quite satisfactory is evidenced by the completion of a large flowing well in the Torrance Field and another at Inglewood. The Pacific finished a big well in the Midway-Sunset area and, while there was not a single completion added in the Ventura Avenue district, there are several drilling projects which look mighty promising. The Standard Oil Co. has not yet taken over the Pacific's field department but will probably do so shortly. M. E. Lombardi, former production manager of the Pacific Oil Co. will, it is reported, have charge of the Standard's drilling and production work in Northern California. Lombardi is a very capable production man and will without doubt be a valuable asset to the Standard's new field department.

Long Beach

The number of new wells added at Long Beach during the past week was considerably larger than the average of the past two months but, notwithstanding this increase, the field's daily production did not show any appreciable change. A. J. Delaney and the California Petroleum each listed three new wells for completion but the former carried off the honors from a production standpoint. Delaney's largest well was No. 21, drilled to 4,432 feet, and finished with a 4¾-inch liner and 4,229 feet of 2½-inch tubing. It came in flowing 246 bbls. of clean 21.7 gravity oil. No. 17 Cerritos came in pumping 182 bbls. of 26.1 gravity oil, while No. 23 Cerritos came in doing 189 bbls. of 20.7 gravity oil which showed a cut of 10 per cent. The former was drilled to 4,408 feet and finished with a 4¾-inch liner, while the latter was completed at 4,422 feet and finished with a 4¾-inch liner, 65 feet of which was shop perforated. Delaney has just made a preliminary test on No. 14 Cerritos but, since it is still flowing emulsified oil to the sump, actual completion data are not available. This well, together with No. 14 Cerritos, will probably be listed for completion during the coming week and it would not be surprising if Nos. 20, 24, 25 and 29 were also brought in, as they are at present standing cemented at the 4,300-foot level.

The California Petroleum ran Delaney a close second for completion honors during the week by finishing three new wells, all in the northwest extension. Their combined output, however, was only 610 bbls. daily. No. 1 Cerritos, drilled to 4,503 feet and finished with a 6¼-inch perforated liner, is rated at 118 bbls. of 21.4 gravity oil, but this well has since gone off production and will require a cleanout job. No. 1 Marquis, drilled to 4,510 feet and finished with a 6¼-inch perforated liner, came in flowing through a ⅝-inch bean and tanked 230 bbls. of 21.9 gravity oil during the initial 24 hours. No. 1 Weedum-Aldahl, drilled to 4,510 feet, is flowing through a similar orifice and tanked 262 bbls. of 21.6 gravity oil during its first test. The California Petroleum is preparing No. 1 Bucklin, No. 18 Fields and No. 1 Frye for production within a few days.

Topped Production List

Breslin-Woodward and Sheedy had the honor of topping the producing list at Long Beach this week by bringing in their No. 3 Cerritos from 4,493 feet after finishing the hole with a 6¼-inch liner, 220 feet of which was 100-mesh screen. The well came in flowing through a ¾-inch beam under a pressure of 500 pounds, tanking 670 bbls. of unusually clean 21.9 gravity oil. The smallest completion listed was Havenstrite and Baker's No. 1 Cerritos, a 107-bbl. pumper from 4,379 feet. Considerable difficulty has been experienced in getting this well on production and, although it was put on the beam some time ago, it did not remain on steady production. Havenstrite and Baker have just picked up the pay in their No. 2 Cerritos at 4,305 feet and are making preparations to land the 8¼-inch water string at 4,300 feet.

The Julian Petroleum Corp. brought in two new wells, No. 1 McLaughlin, drilled to 4,510 feet and finished with a 6¼-inch oil liner, and No. 1 Mills, carried down to 4,422 feet and finished with a 6¼-inch liner. Both are flowing through ¾-inch beans, the former doing 440 bbls. of 21.1 gravity oil and the latter, 202 bbls. of 21.6 gravity oil. This company is still working on several drilling projects and, although five of them are held up with fishing jobs, and ultimate recovery and completion is anticipated. The Modoc Oil Co. put its No. 4 Cerritos on a production test at 4,444 feet after finishing the hole with a 6¼-inch liner, but the initial daily output, 152 bbls. of 21.1 gravity oil, showed a cut of 10 per cent. It is thought that this water and mud content will be reduced after the well has been on production for a week or 10 days.

Production Test

The Gem Oil Co.'s No. 1 Cerritos, drilled to 4,485 feet and finished with a 6¼-inch liner, 208 feet of which was 100-mesh screen, was put on production late in the week. It was brought in flowing through a ¾-inch bean and tanked 397 bbls. of clean 22.1 gravity oil during the initial test. George F. Getty is still going strong and wound up operations this week by completing No. 14 Cerritos at 4,435 feet. This new well, flowing through a ½-inch beam under a pressure of 160 pounds, tanked 280 bbls. of clean 21.8 gravity oil during the first 24 hours following completion. E. L. Craigen's No. 2 Cerritos was a fairly good completion coming in flowing 346 bbls. of unusually clean 22.4 gravity oil. Craigen drilled this hole to 4,430 feet and finished it with a 4¾-inch liner and 3,750 feet of 2½-inch tubing. No. 3 Cerritos is scheduled for production within 10 days.

Harry Failing put his No. 2 Cerritos on a production test after drilling it to 4,436 feet but it looks as though he has encountered bottom water. The initial pumping, 330 bbls., was about 50 per cent water and it is quite possible further work will be necessary. The Elbe Oil Co. is also experiencing difficulty with water and, although its No. 7 Cerritos was cutting 20 per cent upon completion, it looks as though it will clean up. This well, drilled to 4,401 feet and finished with a 6¼-inch liner and 4,240 feet of 3-inch tubing, is rated at 340 bbls. of 20.7 gravity oil. Barham and Leeper's No. 1 Cerritos was given a preliminary test at 4,450 feet but was swabbed in wet and the 8¼-inch will be recemented.

J.N. Cooper's No. 1 Cerritos did not have sufficient gas pressure to come in under a natural flow and, while it was necessary to put it on the beam, the quality of the oil more than offset this additional expenditure. This well, drilled to 4,450 feet and finished with a 4½-inch liner, 210 feet shop perforated, is pumping 172 bbls. of exceptionally clean 22.8 gravity oil. If the weekly completions were listed alphabetically, John Abrams would head the list but his No. 1 Cerritos just finished pushes his rating far down the line. This well, drilled to 4,450 feet and finished with a 4¾-inch perforated liner, was a 100-bbl. pumper, the oil testing 21.5 degrees. Bessmeyer and Yerkes have just completed their No. 1 Cerritos at 4,395 feet but, as it is not showing the usual amount of kick, it is quite possible it will be necessary to put it on the beam.

There was one recompletion listed, the Lindauer Oil Co.'s No. 2 Cerritos, which came in several weeks ago flowing 430 bbls. from 4,537 feet, developed water trouble recently and it was found advisable to plug back to 4,434 feet. Upon being returned to production the well started off flowing 498 bbls. of 21.7 gravity oil daily. The United's No. 1 Barnes, drilled to 4,474 feet, was brought in flowing through a ⅜-inch bean and, although it showed a fairly good pressure, 340 pounds, the initial production was only 180 bbls. of 21.5 gravity oil. The output is cutting approximately 10 per cent water and the flow may increase if this handicap is removed. Keck and McWhorter's No. 2 Cerritos, on the other hand, showed an unusually clean production, 206 bbls. of 22.1 gravity oil. This hole was carried down to 4,449 feet and finished with a 6¼-inch liner.

Erection of Steel Rig

One of the most important developments in the extension was the erection of a steel rig by the California Petroleum on the Jotham-Bixby property in Section 18-4-12. This derrick is about a mile east of the northern end of the Los Cerritos district and the location is regarded with considerable favor, although it ap-

(Continued on Page 121)

Tanker Shipments From Los Angeles to Atlantic and Gulf Coast Ports

Commodity	Total This week	Daily Average	Total Last week	Daily Average	This year To Date	Same time Last year
Crude Oil	172,389	24,627	357,829	51,118	2,574,941	3,918,478
Fuel and Gas oil	301,487	43,070	214,627	30,661	2,322,056	81,539
Gasoline	81,394	11,628	289,725	41,389	1,355,156	894,615
Tops	.....	.....	.....	.....	74,619	80,578
Coastwise						
Crude oil	445,265	63,466	648,382	92,626	5,091,678	6,105,142
Fuel and Gas oil	236,525	33,789	438,206	62,601	1,876,852	2,865,571
Gasoline	139,854	19,978	150,032	21,433	1,563,616	1,067,838
Kerosene	4,360	694	12,441	1,777	80,556	49,961
Tops	74,011	10,573	.....	.....	200,026	41,010
Exports						
Crude Oil	.....	.....	149,499	21,357	775,410	485,171
Fuel and Gas oil	262,932	37,562	291,036	41,577	3,697,497	3,022,440
Gasoline	74,260	10,609	.....	.....	677,705	862,627
Tops	.....	.....	.....	.....	.....	89,932
Kerosene	.....	.....	.....	.....	420,445	313,530

Tanker Shipments From San Francisco to Atlantic and Gulf Coast Ports

Fuel and Gas oil	72,571	10,510	.....	.....	195,023	.....
Gasoline	.....	.....	.....	.....	341,606	332,906
Tops	.....	.....	.....	.....	.....	727,471
Lubricants	.....	.....	.....	.....	82,025	81,939
Coastwise						
Fuel and Gas oil	.....	.....	121,947	17,421	852,826	735,105
Gasoline	27,048	3,864	71,176	10,168	775,144	586,865
Kerosene	.....	.....	5,642	806	74,855	72,985
Exports						
Fuel and Gas oil	26,332	3,762	144,811	20,687	744,304	336,487
Gasoline	78,167	11,167	.....	.....	324,823	110,695
Kerosene	24,460	3,494	.....	.....	357,148	217,765
Lubricants	.....	.....	.....	.....	.....	130,620

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Guernsey County, O., Has Good Gassers

One Makes 10,000,000 feet. Expensive Drilling to Niagara Lime. Pennsylvania and West Virginia Operations. Wildcats Mostly Gas

By D. S. Wakenight

PITTSBURGH, Pa., Mar. 29.—Operators in the eastern fields made slow progress in the way of development work during the past week. The West Virginia fields and southwest Pennsylvania had nothing better to offer than light wells.

The Edward H. Everett Co.'s No. 3 on the Margaret E. Wilhelm farm, in Hanover Township, Section 14, Licking County, produced 120 bbls. the first 24 hours after shot in the Clinton sand. In Lot 26, Newton Township, F. M. Rugg & Co. completed No. 3 on the Clinton S. McKinney farm. It produced 10 bbls. the first 24 hours after shot in the Berea grit.

In the northeast quarter of Section 22, Noble Township, Noble County, Ted Brown & Co. completed a test on the Abigal Thomas farm, good for about 2 bbls. a day in the Buell Run sand. In Brown Township, Knox County, the East Ohio Gas & Refining Co. has a gasser in the Berea grit at No. 4 on the George A. Richert farm.

Good Gassers in Guernsey County

In Section 22, Adams Township, Guernsey County, the Ohio Oil Co. has completed a test on the John S. Speer farm and good for 10,000,000 feet at a total depth of 3,332 feet. In Section 21, the Big Lime Oil Co. completed in the same formation at 3,315 feet a test on the William Knight farm good for 3,900,000 feet, after shot with 40 quarts. In Section 14, the Ohio Oil Co.'s test on the Frank Ankrum farm is good for 1,500,000 feet. In the southeast quarter of Section 23, the Ohio Fuel Gas Co. completed a test on the M. H. Brayden farm and good for 1,247,000 feet. The total depth of the well is 3,425 feet. In Section 13, the same company has a gasser in the same formation good for 480,000 feet on the C. M. Donley farm.

Despite the fact that it is expensive drilling in the Niagara Lime territory, there is considerable new work under way and starting, inspired by the good results at late completions. In Section 14, Adams Township, the Ohio Oil Co. has the rig completed for a second test on the Frank Ankrum farm. The Logan Gas Co. has started to drill another test on the Seward R. Williams farm. The Cambridge Oil & Gas Co. has shut down at 2,500 feet on the L. W. Unterzumber farm. In Section 13, Jackson Township, the Ohio Fuel Gas Co. is building a standard rig over an old Big Lime well on the Lola Shrum farm. The Ohio Oil Co. has rig timbers at a location on the Alice B. Mahaffey farm and drilling at 1,425 feet on the F. Mahaffey farm. The same company has made the location for No. 3 on the James Mercer 160 acres. The Ohio Fuel Oil Co. is building a rig at a location on the C. O. Watson farm. Located 900 feet south of Crooked Creek, Cambridge Township, Guernsey County, the Cambridge Gas Co. has made a location on W. C. Morrison 222 acres.

Light Pumper in Licking County

In Section 9, Franklin Township, Licking County, J. T. Bebout has completed a second test on the W. E. Dispennette farm. It is a very light pumper in the Berea grit.

Holmes County Most Active

For active operations Holmes County is still leading. A great deal of the work in this county consists of drilling initial wells on farms not previously tested. If they prove productive they will open the way for an active drilling campaign next spring, if conditions are favorable. At present there are about 20 rigs up and wells drilling. The Ohio Gas & Fuel Co. is the most active.

Week-End Completions

At the close of the week of development work the southeastern Ohio fields made a very poor showing compared with the first of the week. Dusters outnumber the producers and two of them in the deep territory. In the northeast quarter of Section 7, Hopewell Township, Perry County, the Empire Gas & Fuel Co. drilled a test on the C. D. Chalfant farm through the Clinton sand. It did not find much sand at this location and no oil or gas. In the northest quarter of Section 29, Richland Township, Fairfield County, the Ohio Fuel Supply Co. drilled a test on the S. S. Turner farm through the same formation and with the same result.

In the northeast quarter of Section 34, Falls Gore Township, Hocking County, Westbrook Brothers completed in the Berea grit a test on the John Starr farm. It is a duster and has been abandoned. In the southwest quarter of Section 21, Jackson Township, Knox County, the Arkansas Fuel Oil Co. completed and shot in the Berea grit No. 4 on the James Hardesty 40 acres good for 7 bbls. a day. In Lot 15, Hanover Township, Licking County, the Dextex Oil & Gas Co. has spudded in another test on the W. H. Young farm.

In the southwest quarter of Section 22, Hopewell Township, Licking County, the Hope Construction Co. has a show for a light pumper in the Clinton sand on the E. R. Robison farm. This well was drilled in a gasser three or four years ago but not shot on account of the strong gas pressure. Since it was given a dose of the high explosive fluid it will make a light pumper.

In the south half of Section 23, Jefferson Township, Noble County, Joseph Saling and others have completed in the stray sand a test on the John A. Miller farm. It is a very light pumper. In the northwest quarter of Section 18, Enoch Township, same County, Orton C. Dunn & Co. have drilled a second test on the Lewis Cornett farm through the Buell Run sand not good for more than 1 bbl. a day. In Section 4, Ward Township, Hocking Township, the Sunday Creek Coal Co. is drilling No. 135 on its own property.

West Virginia

The West Virginia fields completed a few wells during the week, but nothing better than light pumpers down to the close. In Union district, Harrison County, 9 miles south of Clarksburg, the Reserve Gas Co. drilled its test on the D. L. Reed farm through the Speechley sand and has a fair gasser. The total depth of the well is 2,996 feet. The Hope Natural Gas Co. is drilling No. 4 on the Marshall Martin farm to the lower sands. In Grant district, the Grasselli Chemical Co. is drilling a test on the A. B. Thornbury farm. The same company is drilling tests on the J. M. Wilkison and M. A. Shellensworth farms.

In Logan district, Logan County, the Wacatock Oil & Gas Co. has a gasser good for 400,000 feet at No. 12 on the Dingess Run Coal Co's. property. The same company's test on the Bolivar McDonald farm is good for 450,000 feet. In Kermit district, Mingo County, the Pilgrim Oil & Gas Co's. test on the Lewis Dempsey farm is a fair gasser. In Logan district, Logan County, the Hope Natural Gas Co. has abandoned No. 3 on the Cole-Crane tract.

On Oil Spring run, Grant district, Ritchie County, Ira Williams & Co. have completed and shot in the Big Injun sand No. 31 on the West Virginia tract good for about 2 bbls. a day. On Dry Ridge, same district, the Astron Oil Co. has completed in the Squaw sand a test on the Herman Sturburg farm, good for 8 bbls. a day. It has not been shot. In the same district, LaFayette Wiles & Co. have the rig completed for No. 21 on the West Virginia tract.

Light Pumper in Wayne County

On the waters of Whites Creek, Union district, Wayne County, the Chartiers Oil Co. has completed and shot in the Berea grit a second test on the Pauline Millander farm showing for a 3-bbl. pumper. The location is 700 feet east of the first test on this farm and is the first well in that locality to get as good a showing of oil. It is possible this discovery may lead to something better in that locality. On Mud River, Grant district, Cabell County, Lewis Sweetland & Co. have the rig completed and started to drill a test on the Garnet Morrison farm. The location is 2,000 feet northwest of the same company's test on the Frank Fowble farm.

In Sherman district, Calhoun County, Godfrey L. Cabot has completed in the Big Injun sand his test on the Walter Scott farm. It is a light gasser. In the same district, the Chartiers Oil Co. has completed No. 5 on the Walton heirs' farm and a gasser in the Big Injun sand. In the same district, the Hope Natural Gas Co's. test on the C. M. James farm is good for 250,000 feet in the Big Injun sand.

In Reedy district, Roane County, the Heck Oil Co's. second test on the J. W. Conley farm drilled into the Berea grit 10 days ago and left in that condition was swabbed and recovered 65 bbls. the first 24 hours. This well when drilled in was reported a duster and is now estimated to be good for 8 bbls. a day.

On Steel run, Clay district, Ritchie County, F. J. Gillespie has completed a test on the John Fleming farm, dry in the Big Injun sand. In LaFayette district, Pleasants County, the Monongahela Oil Co. completed No. 47 on the Thomas Wagner farm, a duster in the Cow Run sand.

On Ice run, Fairmont district, Marion County, the test drilled to a depth of 1,200 feet on the Fleming farm, drilled by the Davenport Oil & Gas Co. and abandoned, has been taken over by the Pleasant Oil & Gas Co. and will be drilled deeper. In Church district, Wetzel County, the Manufacturers Light & Heat Co's. No. 3 on the Donley Renner heirs' farm is a gasser in the Gordon sand.

In Union district, Ritchie County, the Hope Natural Gas Co. has drilled a test on the L. M. Ehret farm through the Big Injun sand. It is a gasser. On Goose creek, Grant district, the South Penn Oil Co's. test on the Harry Jamison farm is now through the Berea grit and is a duster.

On Green Creek, Harper district, Roane County, the Green Creek Oil & Gas Co. had the same luck when it drilled its second test on the William Fields farm through the sand formation. At Metz, Mannington district, Marion County, the South Penn Oil Co. completed in the Big Injun sand No. 4 on the Catherine Tennant farm. It is showing for a 10-bbl. pumper in this formation.

Drilling and Starting Tests

Scattered throughout the old districts there is still some test work starting. As for starting wildcats there is practically nothing doing except in what is thought to be gas territory. The oil companies are confining their efforts to secure new production in old territory.

In Union district, Ritchie County, the

(Continued on Page 104)

SUNBURST WELLS' PRODUCTION SURPRISES WHEN PRORATION LIFTED

By F. B. Taylor

CASPER, Wyo., Mar. 27.—The raising of the proration on oil in the Sunburst Field has brought forth several surprises there as the wells were opened. In some parts of the field some of the big wells that had come in at 1,000 bbls. or more per day and which had dropped to nominal production when it was attempted to shut them in, have come back to the gusher production.

Some of the big wells in the field showed water as soon as they were closed in, but after a week or two of open flow, the water has disappeared entirely and the wells are flowing nearly as much oil as when they were drilled in. The Rose Oil Co. in the central part of the field, the Ohio Oil Co. and other firms have found wells that were being pumped suddenly started to increase production as soon as the wells of the field were opened fully. The Big West Oil Co. on Section 31-35-1 in the southeast part of the field found that its Allen lease has jumped from 500 bbls. to 1,500 bbls. per day in production since the wells were opened to the full.

The Mid-Northern Oil Co. drilled into the Ellis sand on Section 9-35-2 on the Howling lease and got a duster there at 1,673 feet. After shooting the sand in an effort to make a producer, the hole was plugged and a shot will be put off in the Sunburst sand about 1,440 feet deep where the bit found a showing of oil. This well found the Ellis sand deeper than the average for the field as it usually comes in about 1,500 feet.

There are three 80,000-bbl. tanks at Sunburst taking crude for storage now, the Illinois Pipe Line Co. has two of the big tanks and the Homestake Exploration Co. has placed one. These three tanks are located at the town of Sunburst and the Homestake has its own pipe line to its tank so that this oil is not handled by the Illinois Pipe Line Co. The Fulton Oil Co. and the Rice Oil Co. have purchased a 55,000-bbl. tank that is now being built in the field and with this storage available, the oil firms there will not be caught again as they were last winter with a tremendous amount of production and no place to put it during the cold weather when the pipe lines could not handle the output.

New Area Test

A new area is drawing considerable attention at this time in the Sunburst operations. Southwest of the main field, in what is termed the Aloe district, Aloe being a small station on the Great Northern Railway south of Kevin, the Sunburst Oil & Gas Co. and the Fulton Oil Co. are drilling a well in the new district and should report completion in the Ellis sand within a few days. The Sunburst well is on Section 31-34-2 and the Ohio Oil Co. has a well drilling on Section 12-33-3 in the same district. The Ohio

(Continued on Page 149)

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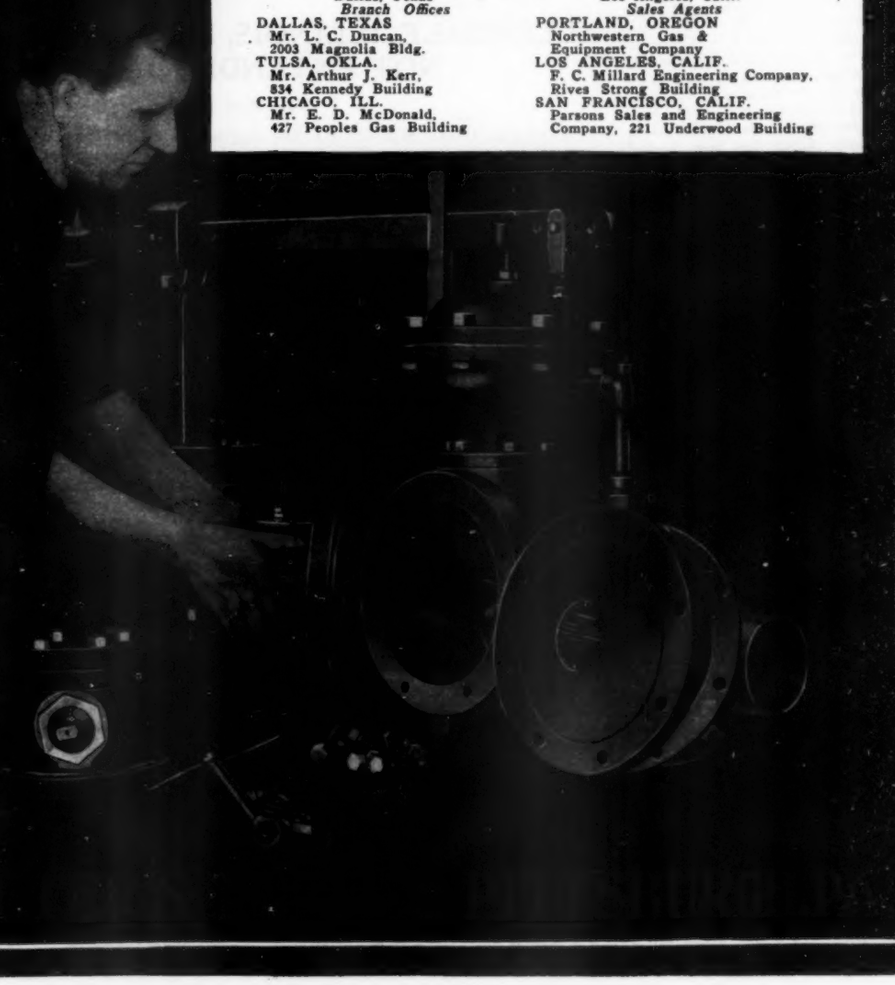

Second Producer in Lecta, Ky., Pool

Barren County Well Makes 50 Bbls.; Heidelberg Area, Lee County, Has 100-Bbl. Well; Owensboro One Making 60 Bbls. in 12 Hours

By Vern T. Whitney

WINCHESTER, Ky., Mar. 29.—The completion of a 100-bbl. well in the Heidelburg area of Lee County; a 60-bbl. production in 12 hours from one in the Owensboro district; one in the Lecta Field of Barren County with 50 bbls. flush; two 20-bbl. wells in Lawrence-Johnson Counties and one at 40 bbls. in the Magoffin County Field, features the past week in the Kentucky-Tennessee fields.

A summary of the week's work shows 22 completions, with a flush of 328 bbls. from 16 producers, 6 dry holes and no gas wells. Compared with the previous week this is an increase of 3 completions, 3 more producers, same number of dry holes and an increase of 222 bbls. in initial production. The wells were distributed by counties as follows:

	Comp.	Wells	Prod.	Dry
Barren	5	5	70	0
Owensboro district	3	1	60	2
Johnson-Magoffin	3	3	49	0
Lawrence-Johnson	2	2	40	0
Wayne	2	1	4	1
Estill	2	1	1	1
Warren	2	0	0	2
Lee-Owsley	1	1	100	0
Allen	1	1	2	0
Morgan	1	1	2	0
Total	22	16	328	6
Last week	19	13	106	6
Difference	3	3	222	0

Prevailing rains have brought the frost from the ground leaving the roads in bad shape in some parts of the Kentucky Field while in others conditions are better. The bright weather has put new activity into the oil fields, and the time is now short until every available drill within the borders of the state will be in commission. Little has been accomplished during the past several weeks because it has not been possible to get into the field with rigs and supplies.

Western Kentucky

The Indian Pipe Line Corp. has added a new gravity to its list of crude prices in the western Kentucky fields. The new price is for 39 gravity and above, quoted at $2.15 per barrels, or 10 cents higher than the gravity up to 38.9. This gives the company four grades of crude with that many different prices. The new change went into effect on March 16. The prices now quoted are: 32.9 and below, $1.86; 33 to 35.9, at $1.95; 36 to 38.9 at $2.05, and the grades from 39 up at $2.15.

Greene County is in for an active development. As far as development work has gone in the county mostly gas has been the result. There are close to 100 gas wells now in the county, the output being used locally and in the manufacturing of carbon black. Showings of oil have been found in some of the wells and operators that have made themselves familiar with the drilling are of the opinion that some oil wells of great value will be found close up to the gas producing area. Metcalf County, to the south of Green, and Taylor and Marion Counties to the north are in line for a thorough testing when the summer season shows up. Adair County, which lies to the east of Greene and between Greene and Russell and Cumberland Counties, is also looking up to a great extent since the big well was discovered some months ago along the Cumberland-Adair line.

Barren County

Interest centers around the newest of Barren County pools, which is near Lecta, a small hamlet a little south of east about 3 miles from Glasgow. This pool was discovered a few weeks ago by the Esslinger Oil Co., the first well drilled on the C. B. Jones lease found a pay right below the shale at a depth around 410 feet, being reported as better than 50 bbls. This well caused a great excitement and a rush was made by operators for acreage to drill. The second well has been brought in at a depth of 410 feet just below the shale and reported showing better than the discovery well, meaning that the pool may develop into one of the rich ones of the county. Both wells had to be shut in on account of a lack of sufficient storage. Since the completion of the first venture several new wells have started in the immediate vicinity. Among the new tests are No. 3 C. B. Jones lease, by the Esslinger Oil Co.; same company's No. 1 Morton lease; Gillespie & Wiggins' No. 1 Spencer; Norris Brothers' No. 1 Williamson; Wood Oil Co.'s No. 1 Keaton, and Ziegler Brothers' No. 1 Pedigo lease, and several other locations on different acreage having been staked.

The new pool, 4 miles south of Glasgow, established by Kinnard and others, is gradually to be extended. This lead seems to be in the direction of the Oscamp Pool, which is not far from where oil was found by the early settlers while drilling for salt water. This well, according to the best information obtainable, was the first oil well drilled in the United States, or rather the first to show oil. Owing to crevices through which the oil was forced this well was shallow. This well flowed uninterrupted down a small creek and occasionally gave the natives a thrill when it caught fire and burned the length of the creek, a distance of several miles, similar to the old well back in 1829 drilled in Cumberland County that also flowed into the Cumberland River and burned a distance of 20 miles or more on top of the swift running water.

Ziegler Brothers' No. 13 Drinon lease, in the Emery-Moore Pool of Barren County, is credited with 8 bbls. from a depth of 485 feet, while No. 14 same lease, showed 5 bbls. at 493 feet.

Consolidated Gas Co.'s No. 15 H. W. Duff, in the Hall-Baker Pool, showed 4 bbls. while Allen & Hartzel's No. 3 DeLond in the Emery-Moore Pool, produced 3 bbls. from a depth of 200 feet below the black shale.

In the Gorby-Haywood district, J. W. Porter's test on the Chamberlain, found a show at the shallow depth of 60 feet but is drilling down to the 110-foot sand. Lew J. Emery, Jr., Sons Co. is due in with No. 24 on the Depp-Greer. Jacob Best, trustee, is nearing pay dirt in No. 5 Sanders. Hiland Oil & Gas Co.'s No. 14 Casaday and T. L. Gorby's No. 3 Walter Beals are both near completion. The Richardson Farm Oil Co.'s No. 5 Richardson, proved dry in the first pay and drilling deeper.

In the Coral Hill Field, Baird and others are drilling No. 3 on the Morgan. No. 2 on this lease produced 3 bbls.

Owensboro District

The Leeper Oil Co. furnished the banner completion of the week in the Owensboro district, comprised of Hancock-Ohio-Daviess Counties, when its No. 6 on the Lone R. Helm, in the Herbert School House district, came in making 60 bbls. during the first 12 hours from the Jett sand at an approximate depth of 500 feet. There are three other producing wells on this tract consisting of 105 acres.

The test drilled by the White Plains Oil & Gas Co. on the Virgil Brown place, several locations northeast of the discovery well on the McBrayer tract, was dry and abandoned in both the Jett and Barlow sands.

In the Collier district, the Daviess County Oil Co. got a duster in its No. 5 L. Howard in the Jett sand. This test will no doubt be carried down to the Barlow sand at a latter date.

It appears that quite a wildcat campaign will be started up within the next two months spreading throughout the Owensboro district on into Henderson, Butler, Hopkins and Muhlenberg Counties. Already large acreage has been secured in these different counties by a number of producing companies as well as by numerous individual operators. These sections are all new to the drill and much enthusiasm is being shown at this time by scouts who were sent in ahead of the drill. These counties have had a few tests in the past and had showings of both oil and gas enough to encourage further development of this Pennsylvanian formation.

Advice from the White Plains Oil & Gas Co.'s test on the Orella Ralph, in the Midkiff Pool, is that it is averaging 15 bbls. daily. Same company is drilling a second test on the J. J. Midkiff, in the same pool. The starting of work on this well was delayed by the difficulty encountered in moving the machine to the location which is overflowed with water from Panther Creek.

The Petroleum Extraction Co.'s well on the Kirk & Woodpatrick lease failed to find any signs of the Jett sand and is drilling down to test out the Barlow formation. The Pennsylvania-Indiana Oil Co. is due to complete No. 12 on the Swope 116 acres, in the Swope Pool. Same company is due to complete in a few days its No. 2 on the Laura Mercer 84 acres, in the same pool. The Chicago Petroleum Syndicate should get sand within a few days at its No. 3 on the Guenther-Gant lease, same pool, and is looking for another good producer. The White Plains Oil & Gas Co. is starting its No. 4 on the H. S. McBrayer 90 acres.

In the Pellville Pool Clarence A. Leeper is starting his No. 7 on the Lon R. Helm 105 acres. It is 400 feet northwest of No. 6, the recent good completion on the lease. Cornell & Son are starting a test on the northeast corner of the Askins 50 acres.

Warren-Allen Counties

In Warren County, T. A. Sheridan's No. 1 G. C. Davenport No. 1 tract, drilled down to a total depth of 1,326 feet getting a duster. No. 4 on this farm is 1,330 feet and not yet completed. The Zev Oil Co. failed to find production in its No. 3 on the E. G. Savage, at the 508-foot depth and is reported dry. Brand & Henderson's No. 5 J. M. Morgan is reported at a depth below 1,200 feet. Lincoln Oil Producing Co. is down close to 1,000 feet at No. 4 C. E. Snell. William Zummer is reported at close to 700 feet at No. 10 on the John W. Covington lease, in Block 7. Caskey & Pryor are down near 500 feet at No. 8 W. R. Price.

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ALLENDALE, ILLINOIS, FIELD NOT EXTENDED INTO INDIANA

By Whit

FINDLAY, Ohio., Mar. 29.—A few days of sunshine has brought out the operator and as soon as the mud roads are in shape to move materials there should be renewed activity in all sections of the Central West Field north of the Ohio River, including central and northwestern Ohio, Michigan, Indiana and Illinois. In these fields a total of 29 completions were reported for the week, of which 15 were oil producers with a flush of 187 bbls., 3 dry holes and 11 gas wells, while 6 old wells were abandoned, and the materials will be utilized in the drilling of new holes.

No wells of any size were brought in outside of the Allendale Field of Wabash County, Illinois. In the central Ohio area, especially in Guernsey County, some mighty fine gas wells were listed among the completions in Adams Township which appears to be one of the richest gas finds in any part of Ohio for a number of years. The best of these wells showed a volume around 10,000,000 feet, the gas being found in the Niagara limestone formation that comes to the surface in the vicinity of Toledo, while in Guernsey County better than 3,300 feet is drilled to reach its depth.

Lime Field

With the advent of better weather drilling operations in the Lima Field of Northwestern Ohio resumed former activity and prospects are that work in the different pools will be carried out on a larger scale than in some years. Arrangements are being made by each company and individuals operating in the old Trenton Rock area to start a number of new wells and rigs are rapidly being erected in order that drilling may be started immediately. A good market and optimistic reports from the major drilling fields of country give a fresh impetus to the work.

One of the foremost companies in the Lima and Indiana fields is the Oko Oil & Gas Co., of which Mack P. Colt is the president. It was this company that purchased the big holdings of the Watson Oil Co., located in Mercer County, with 107 producing wells and leases on approximately 2,000 acres, the deal being made on a basis of $1,900 per barrel, all being settled production. This property with close to 50 or 60 good looking locations to drill will be one of the active spots during the next few months. Most of the work of the company in the Lima Field will be in Mercer, Paulding, Van Wert, Allen, Auglaize, Hancock, Darke and Wood Counties, while a few scattered wells will be drilled in Hardin and Shelby and possibly in Sandusky and Ottawa Counties, to say nothing of some wildcat work outside of the producing boundary. On the recently purchased property in the Hotmire Pool, in Jay County, Indiana, there are quite a number of excellent locations that will also be drilled during the early summer and fall. With this company's prospective operations, along with those of other leaseholders that have staked many locations, one of the most productive years experienced in the Lima or Trenton Rock Field, for the past 25 years is expected.

In the Roundhead Field of Hardin County there is considerable activity and this field will be in for a heavy drilling campaign during the summer. Sandford, Ulrich and others, who a week ago drilled in a 55-bbl. well on the Zimmerman tract, are starting No. 6. No. 5 is reported holding at around 50 bbls. daily with pay at depth ranging from 1,450 to 1,500 feet. The Boston-Southwestern Oil & Gas Co. made location for a number of wells on its acreage in McDonel and other

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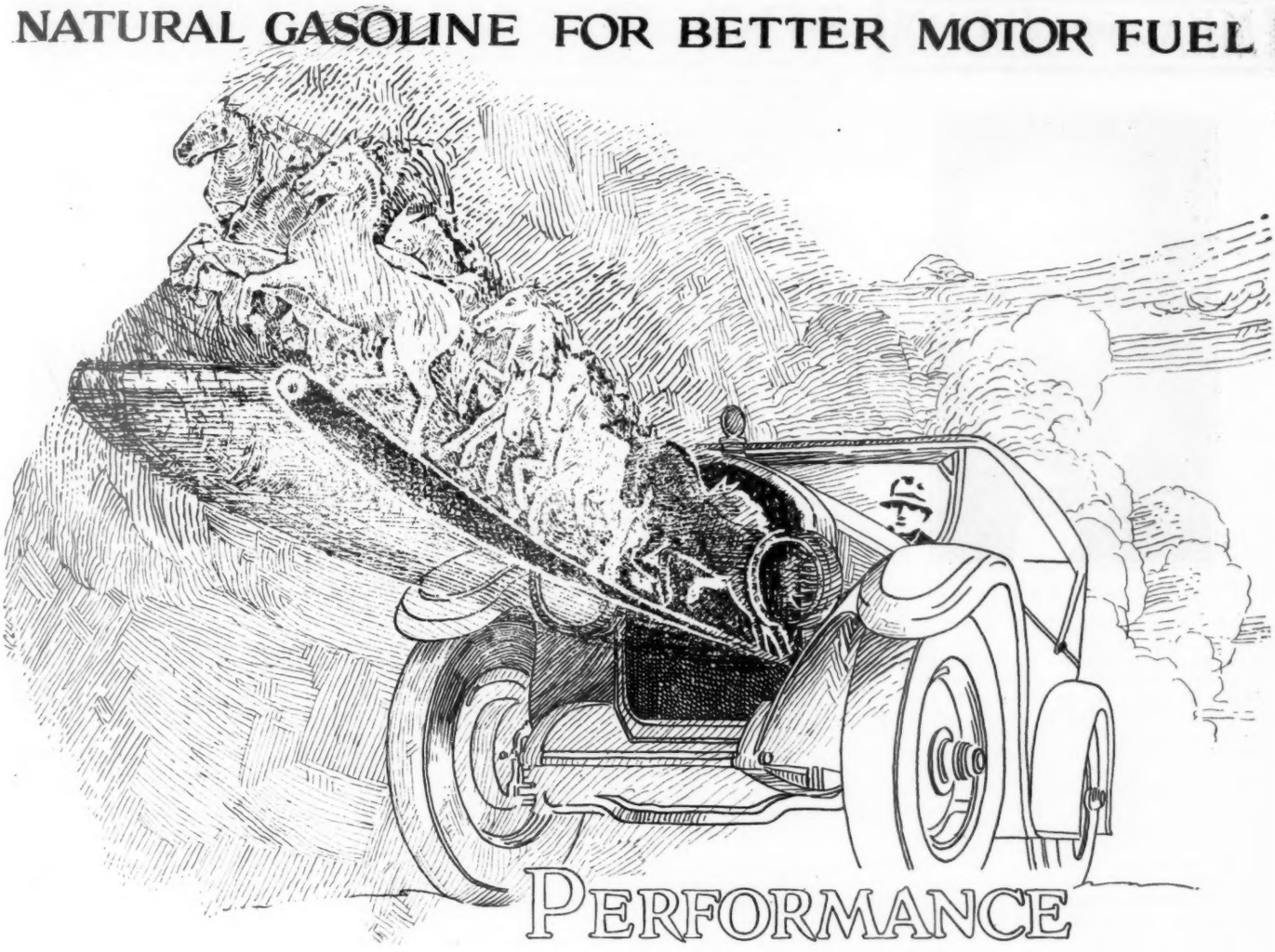

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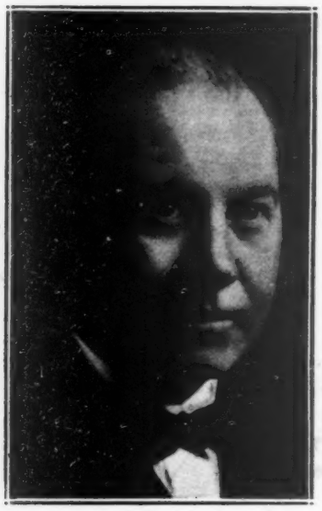

Minal E. Young

Minal Young, manager of the New York Oil Company, was born in western New York State at Jamestown and received his early training in the oil business where the first oil was produced. He was associated with the old Standard Oil Company before the dissolution and for 14 years served that firm in the eastern fields. In 1913, with the late Frank G. Curtis, he saw the possibilities of the Wyoming fields and helped form the New York Oil Company which has become a prominent figure in the history of oil in the Northwest. Mr. Young was elected second vice president and treasurer of the New York Oil Company, a position which he has filled since the company was formed. In 1918, Mr. Curtis found the work of carrying on the company's affairs had grown to large proportions in the West and he induced Mr. Young to go to Wyoming and assume the management of the New York Oil Company's affairs there. In August, 1918, Mr. Young took over the management of the New York Oil Company and the firm has prospered under his direction.

PERSONAL PARAGRAPHS

M. F. Brennan of the Bradford Motor Works of Bradford, Pa., was a Tulsa visitor recently.

* * *

William Roeser was in South Texas recently and registered at the St. Anthony in San Antonio.

* * *

F. H. Wickett, president of the Dixie Oil Company, has been in San Antonio, Tex., recently.

* * *

Woodward Kirkpatrick of Bowling Green, Ky., spent several days at French Lick Springs, Ind.

* * *

George McDonald has returned to Petrolia, Ont., on furlough after three years spent in the Peruvian fields.

* * *

M. J. Flannigan of the Gaso Pump & Burner Company has returned to Tulsa, Okla., after a trip to Texas.

* * *

D. M. Folsom of the General Petroleum was in Los Angeles but has returned to his office in San Francisco.

* * *

William C. Schramm of the Mound City Chemical Company, St. Louis, is in the Mid-Continent in the interests of his concern.

* * *

Ray Braybrook of Petrolia, Ont., will leave at the end of March for Negritos, Peru, to join the International Petroleum Company staff.

Duncan McMurphy, for the past year employed in the Texas fields, is visiting his parents at Oil Springs, Ont.

* * *

Mr. and Mrs. Tom Morris Hunt of Bowling Green, Ky., spent several days with relatives at Louisville and Cincinnati.

* * *

C. L. Turner, drilling contractor of Bowling Green, Ky., is taking a month's journey through the Mid-Continent fields.

* * *

R. J. Scott is making a tour of the Mid-Continent Field in the interest of the Hercules Motor Company of Canton, Ohio.

* * *

Charles Vandergrift, vice president of the Crescent Pipe Line Company, Lancaster, Pa., was a Pittsburgh visitor during the week.

* * *

Thomas Flanagan of the Gaso Pump & Burner Company, Tulsa, a native of Oil City, was a recent business visitor to Houston, Tex.

* * *

John Carson, general sales manager of the Cosden Sales Corporation, Chicago, is in New York City for a business trip of one week.

* * *

R. B. Millard, chief engineer of the Southwestern Engineering Corporation of Los Angeles, Calif., is in Tulsa for an indefinite visit.

* * *

S. V. Stewart, vice president and general manager of the Ajax Iron Works of Corry, Pa., made a trip through the Mid-Continent Field.

* * *

Earl R. Waddell of the Chisholm-Moore Manufacturing Company, Cleveland, Ohio, is in the Mid-Continent area on a business trip.

* * *

Ford Wilders of the gasket division of the McCord Radiator & Manufacturing Company of Detroit, Mich., was in Tulsa last week.

* * *

D. L. Thomas, Oil City, agent for the Eureka and Southwest Pennsylvania Pipe Line Companies, spent several days in Pittsburgh last week.

* * *

John Crotty, president of the Republic Supply Company, Houston, Tex., has returned from a business trip through the North Central Texas fields.

* * *

James T. Aubrey of the Aubrey & Moore Advertising Agency of Chicago, Ill., made a trip to the Texas Panhandle Field, stopping en route at Tulsa, Okla.

* * *

Norval White, Pacific Coast representative of the American Petroleum Institute, was a recent visitor in Los Angeles, in connection with institute matters.

* * *

E. H. Finch, geologist and vice-president of the Bristol Oil & Gas Company of New York City, left Dallas, Tex., for a business trip to Los Angeles, Calif.

* * *

Sam Hays of Tulsa, Okla., stopped off between trains at Casey, Ill., and called on old-time friends. He had been to Pittsburgh and was en route to Tulsa.

* * *

President H. L. Pratt of the Standard Oil Company of New York, was in Los Angeles, Calif., recently in connection with the General Petroleum merger.

* * *

Clarence A. Leeper, president of the Leeper Oil Company, in the Owensboro, Ky., Field, has returned to Owensboro from a short stay at Hot Springs, Ark.

* * *

T. M. Banks has joined the geological staff of the Vacuum Oil Company, with Houston headquarters. He was formerly connected with the Texas geological survey.

* * *

E. O. Opherkuck, sales manager for the Superior Engine Company, Springfield, Ohio, was a recent visitor in the Texas oil producing regions, both north and south.

* * *

W. P. Simmons, copartner of E. M. Treat, with headquarters at Bowling Green, Ky., is in New Mexico on a scouting trip. Mr. Simmons is a real enthusiast as far as New Mexico is concerned.

J. W. Kelliher of Wichita Falls, district superintendent for the Continental Oil Company, has been in Coleman County, Texas, looking over the field.

* * *

J. F. Hosterman, Amerada Petroleum Corporation geologist with offices in Shreveport, La., made a business trip to the Amerada's offices in Tulsa, Okla., last week.

* * *

H. F. Wood, representative of the Strong, Carlisle & Hammond Company of Cleveland, Ohio, is in the Mid-Continent Field calling on refiners and natural gasoline manufacturers.

* * *

Jack Dinciger of Kansas City, vice president of the Danciger Oil & Refining Company, has assumed charge of the Oklahoma City office of the company recently established.

* * *

C. A. Wooten is president, E. T. Ellis, vice president, and R. L. Brooks, secretary-treasurer of the Phillips County Gas & Oil Company of Helena, recently chartered in Arkansas.

* * *

Lionel Barneson, president of the General Petroleum Corporation, who was injured in an automobile accident a month or so ago, is up and around but not entirely recovered.

* * *

Frank M. Kelsey, in charge of Texas operations for the Independent Oil & Gas Company, has just returned to his Fort Worth office after several days spent on the company's properties in Crane County, Texas.

* * *

Edwin Higgins, secretary of the Chamber of Mines and Oils, is one of the busiest men in Los Angeles making preparations for the forthcoming banquet to be held at the Ambassador Hotel on April 7.

* * *

George D. Locke, vice president of the Barnsdall Refineries, Inc., has recovered from his recent attack of rheumatism and has left for Tulsa, Okla., where W. W. Rice, sales manager at the Chicago office, has been for some days past.

* * *

John Tidball, field manager for the International Steel Derrick Company, was a business visitor in Casper, Wyo., looking over the stock of the company there. Mr. Tidball was formerly located at Casper but is now at Amarillo, Tex.

* * *

Mr. and Mrs. Nathaniel J. Harris of Bradford, Pa., are the guests of Mr. and Mrs. A. R. Simons of Tulsa. Mr. Harris owns production and leases in Oklahoma and Texas, but had been absent from the Mid-Continent Field for several years.

* * *

J. N. Pigot of the Pigot Sayre Company, 29 Broadway, New York, is enjoying a vacation in Florida. Mr. Pigot was the choice of the nominating committee for president of the Oil Trades Association of New York, Inc., at its annual election.

* * *

Former Gov. and Mrs. B. B. Brooks returned the past week from a trip to California where Mr. Brooks attended the annual Petroleum Institute convention, then through the Panama Canal to Cuba and New York and from New York to Washington.

* * *

H. Jensen, vice president of the Spencer Petroleum Company of Chicago, was taken ill with a severe attack of appendicitis late last week and hurried to the Evanston Hospital for an operation which was entirely successful and his friends will be glad to know that it is only a matter of a week or two before he will be at his office in better health than ever. He had a severe attack about a year ago.

* * *

W. P. Gage and wife have returned to Houston, Tex., from a trip that took them from San Pedro, Calif., through the Panama Canal, to various Central American Republics, Cuba and West Indies. Mr. Gage was formerly president and general manager of the Pure Oil Pipe Line Company, retiring when the Prairie Pipe Line Company acquired the property. Mrs. Gage is visiting her parents in Houston, Mr. and Mrs. A. F. Denniston. Mr. Denniston is one of the few survivors of the stirring days of Petroleum Center and Pithole back in the old Pennsylvania fields.

You can judge a Tool Joint by those who use it.

Leading Operators and Contractors throughout the Rotary Fields of the world use and recommend

HUGHES TOOL JOINTS

Sold by Supply Stores Everywhere

HUGHES TOOL COMPANY

Branch Plants:
Los Angeles, Calif.
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HOUSTON, TEXAS

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New York City

NATURAL GAS DEVELOPMENTS

FRANCHISE DECISION UPHOLDS GAS COMPANY

The city of Corpus Christi, Tex., which voted a $350,000 bond issue to put in a natural gas distributing plant, has no right to prohibit the Corpus Christi Gas Co. from operating, under a ruling by the Fourth Court of Civil Appeals, which held that the gas company's franchise gives it the right to distribute natural as well as artificial gas and that the franchise is a contract between the city and the county which cannot be violated.

The ruling was made in reversing the action of the District Court of Nueces County in enjoining the gas company from digging ditches and trenches in the streets of the city for the purpose of laying gas mains. The city claimed the company had a franchise for distributing and selling artificial gas only. The trial court held that a clause in the franchise giving the company the right to distribute natural gas in case such gas should be discovered in sufficient quantities near the city, was without consideration and mutuality and therefore not binding.

The Fourth Court of Civil Appeals held that the franchise had been legally granted to the company and that nothing had been done by the company in violation of its provisions. The company had been supplying artificial gas for years, it was held, and the clause in regard to natural gas was held binding.

The Court of Appeals declared that a franchise is a contract and when money is spent under its terms it becomes a vested right.

OHIO FUEL REPORTS INCREASE IN SURPLUS

The first annual report of the Ohio Fuel Corp. shows a net income after all charges for 1925 of $10,260,845, equal to $2.46 a share on 4,158,340 shares of $25 par value capital stock outstanding. The profit and loss surplus at the close of the year totaled $23,321,957 compared with $21,133,183 at the close of the previous year.

The Ohio Fuel Corp. was organized in September of 1924 as a holding company to control the Ohio Fuel Supply Co., Manufacturers Light & Heat Co. and the Union Natural Gas Co. These three organizations control 4,500 producing gas wells and more than 1,100 oil wells.

During 1925 the company added to its properties by the acquisition through an exchange of stock, the Natural Gas Co. of West Virginia, the Ohio Fuel Co. and the Pennsylvania Fuel Supply Co. These three organizations control 834 gas and 1,061 oil wells.

An itemized income account for the year ended December 31, 1925, follows:

Gross earnings	$40,438,227
Operating expenses	23,585,433
Taxes	3,138,360
Depreciation	5,405,911
Net from operations	8,308,523
Other income	2,162,937
Gross income	10,471,460
Interest	210,614
Net income	10,260,845
Credit adj.	187,395
Dividends	8,259,966
Surplus for year	2,188,773
P. & L. surplus Dec. 31	23,321,957

EQUITABLE GAS REPORT

Equitable Gas Co. and affiliated companies report for year ended December 31, 1925, shows net income of $1,108,247 after depreciation, taxes and charges against $603,816 in 1924.

Report of Equitable Gas Co. and affiliated companies for 1925 compares as follows:

	1925	1924
Gross	$14,196,892	$13,750,774
Net after depr. and tax	3,706,925	3,233,886
Gross income	3,927,196	3,516,389
Int. & rents	2,818,951	2,912,573
Net income	$1,108,247	$603,816

COLUMBIAN CARBON CO. REPORTS DIVERSIFYING PRODUCTS HELPS

With shipments in 1925 the largest in its history, and 28 per cent above 1924, Columbian Carbon Co. reports its ability to earn and pay a satisfactory return on its capital, despite abnormally low prices for carbon black. This result is due largely to the policy of diversifying the business so as to include production and sale of gasoline, natural gas, lamp black, vegetable black and bone black, F. F. Curtze, president, states in his annual report.

"After a long period of overproduction," he continues, "a better balance between supply and demand has been established and contracts for 1926 have been made on a more satisfactory price basis.

"The company during the year improved its net liquid position by nearly $2,000,000. Current assets on December 31, 1925, were $5,848,932, of which $1,128,834 was in cash, $1,406,863 in receivables and $579,812 in Liberty bonds and United States Treasury notes. Current liabilities at the same date, including reserve for income taxes payable in 1926, were $633,382, leaving net current assets of $5,215,550, against $3,290,255 at close of 1924. The financial condition of the company is such as to enable it to avail itself of opportunities now presented for the expansion of its business in directions likely to increase and further to stabilize its earning power.

"Inventory on December 31, 1925, totaled $2,712,542. With better prices now prevailing, it is expected a very substantial profit will be realized when the inventory is liquidated.

"With reserves for depreciation and depletion in 1925 of $1,622,727, or $4.03 a share, reserves in these accounts at the end of the year totaled $8,064,033, or about 49 per cent of entire property account."

Comparative production figures for the past four years follow:

Year	Carbon Black (Pounds)	Lamp Black and Other Pigments (Pounds)	Gasoline (Gallons)	Natural Gas (Cubic Feet)
1925	64,888,416	7,443,786	12,001,811	41,985,626,000
1924	73,536,145	5,218,867	15,173,059	49,980,883,000
1923	62,490,513	7,019,928	12,405,571	36,880,248,000
1922	31,512,619	4,462,141	4,720,494	20,358,011,000

Sales of natural gas in 1925 increased 16 per cent in volume and 35 per cent in gross revenue. Growth of the company's natural gas business is shown by the following table:

Year	Cubic Feet	Gross Revenue
1925	7,017,921,000	$964,934
1924	6,083,310,000	715,607
1923	3,298,386,000	166,457
1922	2,175,315,000	131,080
1921	1,376,853,000	109,335

In November the company began delivery of gas from its properties in Kanawha and Roane Counties, West Virginia, to Hope Natural Gas Co. Deliveries under this contract have averaged about 8,000,000 feet a day, but commenced too late in the year to have an important bearing on income. Price received for this gas is 15 cents a 1,000 feet, with annual increase.

"From plans now matured a great expansion in gas sales is expected within the next 12 months," Mr. Curtze stated. "Total open flow capacity of company's wells in the Monroe, La., field, according to official gauge made in September, 1925, was 825,921,049 feet a day. Company controlled 38,593 acres in that field on December 31, last, of which 31,258 acres were owned in fee. Since the close of the year the Louisiana acreage has been greatly augmented by purchase of additional fee and leasehold lands in the proven area.

"Prices of carbon black are approaching more nearly to normal levels and price of natural gas gasoline is holding steadily, with prospect of improvement as the season advances. Natural gas sales in 1926 are expected to greatly exceed any previous year."

GAS QUOTA REDUCED FOR CARBON PLANTS

MONROE, La., Mar. 27.—Since the first of the month the new gas quota for carbon black manufacture in the local field went into effect for a period of six months. The quota allows the industry a daily consumption of 275,000,000 feet, which is 15,000,000 feet less than the former allowance.

This new quota is 40 per cent less than the consumption of gas in the Monroe Field a year ago, and represents the third reduction in consumption made recently by the State Department of Conservation.

Although there are certain carbon companies that are alleged to have "overpulled" their wells last year, statistics show the consumption of gas in the field for the last six months was 4 per cent less than the quota.

This fact, it is said, is evidence that the Department of Conservation is receiving cooperation from carbon manufacturers, who are complying with the gas conservation law in every respect.

GAS INCREASE AT PITTSBURGH

PITTSBURGH, Pa., Mar. 27.—A schedule of rates which will increase prices of gas to Pittsburgh concerns using over 75,000,000 feet monthly during the summer months has been filed with Pennsylvania Public Service Commission by the Equitable Gas Co. The increase, from 33 to 41 cents per 1,000 feet, will not affect householders and is designed to meet the summer slump which results from the decrease in amount of gas used in homes.

COPING WITH FROZEN GAS LINES IN ALBERTA

The Edmonton, Alberta, Journal, in an article in which it tells its readers of the difficulties attending the job of supplying that city with natural gas from a field 83 miles distant, gives the following paragraphs on the results of very severe winter weather conditions and how they are met:

"Strangely enough, troubles caused during the really cold weather of winter, rarely cause any trouble, until the spring thaw sets in. The main cold weather trouble is 'pinching,' which doesn't mean petty thievery, though it may sound like it!

"The gas, as it comes from the wells, is much warmer in the winter months than the pipes, which are above the frost line. Naturally, there is a tendency for the surplus moisture in the gas to condense and freeze on the inside of the pipes.

Ice May "Telescope"

"Should this occur to any great extent, the ice which forms, may commence to slip until it telescopes and blocks the pipe. The indicators speedily show when and where this trouble has occurred, and then the trouble crew, led by the field superintendent, must hustle and get the blocked pipe cleared.

"The usual method is to run alcohol into the offending pipe, while opposing streams of gas are run through the gates against the mass. The resultant effect is that the ice is broken down, bullied and jostled, until it gives up the struggle, and is shot out via the nearest drip.

"Winter accumulation of ice, however, usually does not make its presence felt until the spring thaw, when the deposits are released, and more pinches may result than during the cold weather."

PREDICTS THAT GAS WILL DISPLACE COAL

That gas as fuel will in a few years take the place of anthracite and all coals is the prediction of Dr. Julian C. Smallwood, associate professor of mechanical engineering at Johns Hopkins University.

"The days of anthracite are numbered," he said. "There is too little anthracite and it is too expensive. Many persons have told me that they have no intention of resuming its use after the interruption this winter. Under present conditions this means increased use of soft coal, with a consequently greater smoke nuisance."

Doctor Smallwood expressed himself as opposed to ordinances regulating the evil.

"The enforcement of such ordinances in other cities is not encouraging," he said. "They require the formation of still another bureau with a chief and a corps if investigators. We are already overburdened with them and their usefulness is, to say the least, problematical.

"In a few years gas will be far less expensive than at present, and gas, I believe, offers the most probable solution of the heat and smoke question. Oil is used in some cases, but there is not enough of it and it is impracticable. Coke is another serious possibility and awaits only improvements in methods of consumption.

"Railroads for some time to come will be obliged to use coal. The abatement of the smoke nuisance from railroads will come through electrification."

GAS STORAGE COSTLY TO MEET PEAK DEMAND

Provisions for meeting inequalities in demand, always a considerable problem for public utilities, according to officials, has cost manufactured gas companies in the United States $125,762,670. This represents the value of storage appliances for making gas available at all times. For this purpose a total of 1,143,297,000 feet of holder space is required.

The storage capacity provided is generally based on what is called the maximum day send-out, that is, storage facilities are adequate to hold all gas required on the day in the year in which demand is heaviest. This is estimated at from 1-260 to 1,270 of the year's output.

Assuming that there are 1,143 holders, each of 1,000,000 feet capacity, in use by manufactured gas companies alone, it requires more than 164,592 gallons of paint annually to keep them in condition.

LONE STAR GAS CORP.

NEW YORK, Mar. 27.—Stockholders of the Lone Star Gas Co. have been offered the right to exchange each share of the present stock of $25 par value for one and two-thirds shares of stock, $25 par, of the Lone Star Gas Corp., a recently formed Delaware corporation, which will take over the assets of the Lone Star Gas Co. of Texas, provided 80 per cent of the stock is deposited with the Pittsburgh Trust Co. by April 1. Fractional shares will not be issued. The new corporation has authorized capital of $30,000,000, of which $22,500,000 will be used in exchange for $21,250,000 stock of the old company. The remaining either will be sold to stockholders or used to acquire new properties in the future.

Introducing Lew D. Hilton

A PRACTICAL OIL MAN who, while he doesn't claim to know it all, has had a wealth of actual experience in directing oil drilling and production, with special training in control work, in which he is particularly proficient and for which he is specifically prepared by the facilities at his command.

Lew is direct from the field, where he has rubbed elbows with the oil man's problems as they ARE and not as theorists might have them, and has learned from actual experience many of the methods of solving these problems. He is a happy combination of both the highly technical and the thoroughly practical field man. A great many of you oil men know Lew personally, and to you no introduction is needed.

Call on Lew for information or service. His Houston office has been opened for the sole purpose of assisting the operators of the Mid-Continent Field, wherever his services are needed. His counsel costs you nothing.

Regan Sales Co.

1521 Post-Dispatch Bldg. Preston 10093
HOUSTON, TEXAS

406 West First St., Tulsa, Okla.

REGAN PIPE SUSPENSION AND CONTROL HEADS AND REGAN TRAVELING BLOCKS

EQUIPMENT AND SUPPLIES

FOR FACTORY CONTACT WITH MID-CONTINENT

To establish direct factory contact with the Mid-Continent Fields, Joseph Regan, of the Regan Forge & Engineering Co. of San Pedro, Calif., has concluded arrangements for opening a main factory office to serve the Mid-Continent territory. He has been in the Mid-Continent for several weeks and has supervised the opening of headquarters at 1521 Post-Dispatch Building, Houston, Tex., under the management of Lew D. Hilton.

A branch office has been established at 406 West First St., Tulsa, Okla., Jack A. Becker, who has been in charge of Regan sales for several months, will be manager of the Tulsa office. An expert service man has been engaged to give factory service in the Mid-Continent Field. Mr. Regan plans to remain in the Mid-Continent Field for two or three weeks.

The Regan Sales Co., a subsidiary of the parent organization represents Regan products in California and with the establishment of the Mid-Continent offices a national service is offered. Offices are maintained in New York City under the management of William Braat.

TRUCK TANK HANDBOOK HELPFUL TO OPERATORS

The Columbia Steel Tank Co. of Kansas City, Mo., has printed "The Truck Tank Handbook." This interesting volume is presented with the confidence and experience of 30 years of truck tank making.

It recalls the development of the truck tank from the early stages when its principal use was in the kerosene business; and follows with the modern vehicle demanded by the marketing business of today.

Each step in truck tank manufacture is explained, and illustrated. Welding and mounting are given much space in an effort to acquaint the users with the unlimited care which is given to every operation of manufacture. The handbook enumerates the advantages of removable carrying racks.

WILL HANDLE ENGINES

The Climax Engineering Co. of Clinton, Iowa, announces several new appointments. H. Y. Smith Co. of Milwaukee, Wis., will handle the sale of Climax engines in Milwaukee and eastern Wisconsin. A. K. Miller Engineering Co. of Mobile, Ala., is the new agent for southern Alabama, while L. H. Staley of New Orleans is the new agent for Louisiana. The Petroleum Electric Co., of Tulsa, Okla., has been made agent in the Tulsa territory, and will carry a stock of drilling engines, reverse clutches, industrial portable power houses, and a complete line of repair parts. In north Texas, the Clark Machine Co. of Wichita Falls, will carry a similar stock and be the sales agent.

DESCRIBES POWER DRIVE

The Borden Co. of Warren, Ohio, makers of the Beaver line of pipe cutting and threading tools, has mailed a folder covering Beaver No. 44 Power Drive, to the trade. The No. 44 is adaptable to a number of uses where pipe is employed.

ELECTED SECRETARY

H. C. Osman, sales manager of the Nugent Steel Castings Co., Chicago, has been elected secretary of the company. He will continue to have charge of the sales for the company. C. A. MacDonald, formerly secretary, has been elected treasurer.

WELDED DRYING COILS

"Oxy-Acetylene Tips" the organ of the Linde Air Products Co. contains two items of interest to the oil industry. One is entitled "Gasoline Plant Uses Novel Drying Coils", and shows the manner in which this type of plant equipment was constructed. The other article is descriptive of barrel repairing, and shows several gasoline drums being repaired by welding.

SOME FAST WORK

Due to legal difficulties and the fact that several leases carried the same expiration date, a California oil company recently found itself compelled to spud a well at midnight the next day in order to save the lease.

Erected in one day

The Julian Petroleum Corp., of Los Angeles the company involved, purchased an Okell rotary drilling rig at 10 a. m. on the morning of the expiration date, and the rig was transported by tractor over concrete roads.

Before the derrick was completed the Okell equipment was slid into place on the sills, and the crown block and shieves went into position at 4 p. m. Eighty feet of hole was drilled by 6:30 p. m. that night.

LOS ANGELES STORE OPENED

With the completion of its new and fully equipped store at Santa Fe Springs, the D & B Pump and Supply Co. of Los Angeles, Calif., and Dallas, Tex., is in position to give service to oil men throughout the southeastern portion of the Los Angeles basin through the Montebello and Santa Fe Springs Fields. The new store, which will be directly in charge of Glenn Henderson, will carry an adequate stock of pumps, sucker rods and all types of fittings used in the fields.

LARGE VOLUME GAS METER

The Metric Metal Works of Erie, Pa., is distributing booklets on the new "Metco" positive large volume gas meter. This meter was designed to take care of industrial installations where a large capacity is required. The new meters are designed and rated as called for in the American Gas Association specifications.

PLACE ORDER FOR PIPE FOR BATON ROUGE GAS

The order recently placed for 38,000 tons of 22-inch pipe, divided between the National Tube Co. and Spang, Chalfant Co., is for a natural gas pipe line project to supply fuel to the big Baton Rouge refinery of Standard Oil Co. of Louisiana, Standard Oil of New Jersey subsidiary, according to New Orleans advices.

The line will run about 170 miles from the Monroe gas fields of northern Louisiana to the refinery. The size of the pipe indicates transportation of a large volume of gas is proposed, and it may develop that sufficient quantity of gas may be available after refinery needs, to permit local gas companies to supply natural gas in New Orleans and Baton Rouge to their consumers.

Preliminary surveys for the line indicate crossing of the Mississippi near Natchez. Facilities for unloading and handling the pipe have been arranged along the river.

JOHN F. HEIL IS MADE DISTRICT SALES MANAGER

John F. Heil, for the past two years manager of the San Francisco office of the Reading Iron Co., has been promoted to district sales manager of the entire California district, and is now making his office at the company's western sales headquarters, 826 Van Nuys Building, Los Angeles. Mr. Heil will now be in active charge of both oil country and standard pipe sales. The promotion comes to him as a reward for the splendid record made in building up the company's standard pipe business on the Pacific Coast.

Edgar L. Tompkins, who for the past eight years has been associated with the California Petroleum Corp., and affiliated companies, has severed his connection with that organization to associate himself with the Reading Iron Co. in a sales and research capacity. Mr. Tompkins began his career in the oil fields as roustabout in the Montebello district, later acting as a scout over the southern district for Petroleum-Midway Co. He then spent a number of months in the production department of the American-Oilfields Co. in the Midway Fields. Following the experience, Mr. Tompkins returned to the south and was actively associated with T. A. O'Donnell and P. H. O'Neil in the Western Star Oil Co. at Signal Hill.

The Reading Iron Co. is doing considerable research work covering pipe problems in all oil field service and Mr. Tompkins will spend much time in particular in the San Joaquin Valley fields checking up the life of wrought iron casing, compared with other metal in order that the oil companies may secure data of interest in their efforts toward conservation.

NAMED BOSTON DEALERS

Climax Engineering Co., Clinton, Iowa, announces the appointment of Rapp-Huckins Co., Inc., 59 Haverhill Street, Boston, Mass., as district representatives for the sale of Climax industrial power houses and engines. The Rapp-Huckins Co. is an old firm. During the past 25 years it has handled marine and industrial engines. It maintains a showroom, as well as a service station.

EOTVOS BALANCE BOOKLET

L. Oertling, Ltd., of London, Eng., have distributed a pamphlet on the Eotvos torsion balance. This instrument works on the gravitational method, and is used as an aid to the geologist in discovering the structure of underlying formations in localities where they are masked by overlying formations.

Pipe Standardization Up to Oil Men Says Institute's President

W. S. Farish, president of the American Petroleum Institute, in an article on the subject of "The Advantages of A. P. I. Pipe Specifications" says:

"It is now up to the oil industry to actively cooperate and bring into use as rapidly as possible A. P. I. specification oil country tubular goods. The Standardization Committee, of the Institute, appointed for this purpose, as a result of five years' effort, has completed the specifications for casing and they have been issued in specification form.

"At the annual meeting of the Institute recently held in Los Angeles, certain refinements were added to this specification. These refinements do not affect the basic sizes of threads in the specifications, but apply more particularly to workmanship and finish.

"We believe it is now up to the oil industry to get behind this movement to the end that A.P.I. specification tubular goods may promptly come into use in the oil country. It is realized, as a practical matter, that the change to these new sizes cannot be made rapidly. It is important, however, that each company using tubular goods analyze their situation and, wherever possible, specify A. P. I. pipe. With the proper consideration on the part of the executives of the oil companies, at the present time, we will soon see A.P.I. specification contains four of the present sizes of pipe now generally used. We believe, however, that because of the better clearances the new sizes will soon be used. The specification also provides for three sizes of external upset casing for deep wells.

"The specification further provides that tubular material manufactured in accordance therewith shall be stamped with the A. P. I. monogram."

R. J. SHARPE PROMOTED; J. V. O'NEILL NAMED

The General American Tank Car Corp. of Chicago, Ill., announces the appointment of R. J. Sharpe as general sales manager with headquarters at the company's main office in Chicago. Mr. Sharpe has been district representative for the company at Tulsa, Okla., for several years.

The appointment of J. V. O'Neill as district representative for the Tulsa district, is also announced. Mr. O'Neill will take charge of the Tulsa office April 1.

OPENS TULSA OFFICE

In order to render better service throughout the oil fields of the southwest, the Central Steel Co. of Massillon, Ohio, has opened a district sales office at 404 West First street, Tulsa, Okla. It will be in charge of L. S. Allen, who has not only gained a first hand knowledge of steels through his connections with eastern mills, but also knows the steel requirements of the oil fields as a result of his many years of contact with the oil drilling industry.

NEW REPRESENTATIVE

The Homestead Valve Co. of Homestead, Pa., announces the appointment of the Marine Specialty Co. of New Orleans, La., as representative in that territory.

DESCRIBES TUBING SUPPORT

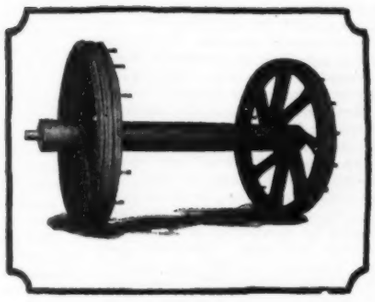
The F. M. Crowell Co. of Tulsa, makers of oil well tools and equipment has distributed a folder describing the Crowell safety tubing support.

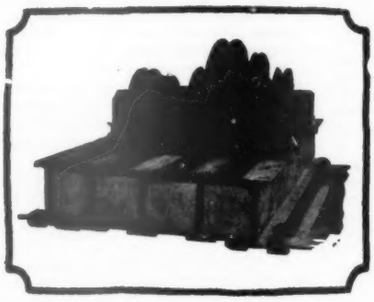
a Wind Storm

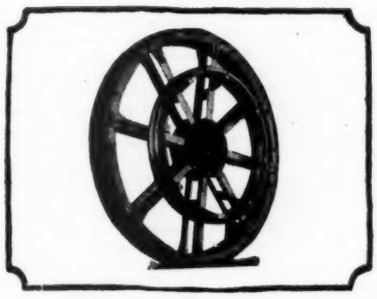
International "Ideco" Derricks of Galvanized Structural Steel mean a permanent, yet portable, installation devoid of upkeep expense, but absolutely storm-proof.

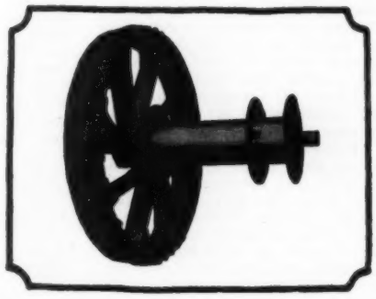
"Ideco" derricks are built of beams, channels and angles, giving greater strength for a given weight than any other form of steel construction—fabricated entirely in our own plant. By the International method of galvanizing after fabrication, every exposed part is given an extra heavy rust-preventing zinc coating.

How big operators have effected remarkable savings in their production costs is shown in the booklet, "Steel vs. Wood." Write for it.









INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

Oklahoma's Deep Horizons Correlated

Some Complex Problems of the Driller Are Explained By Relations and Extent of Formations Below the Chattanooga Shale

By Luther White
*Chief Geologist, J. A. Hull Co.**

Maps prepared by Mr. White to go with this article are published as an insert in this issue of The Oil and Gas Journal and may be found between pages 16 and 17.

This paper will discuss, primarily the pre-Chattanooga sections in two provinces of Oklahoma as outlined in Oklahoma Geological Survey Bulletin No. 35, entitled "Index to the Stratigraphy of Oklahoma" by Charles N. Gould. This bulletin is indeed a much needed and creditable piece of work. In this small volume Doctor Gould has digested the more important publications dealing with the various formations in Oklahoma. He reports the consensus of opinion of all authors in a brief outline for each formation, giving its nomenclature, type locality, character, thickness, occurrence, age, correlation, characteristic fossils and citations of the principal authors dealing with the formations. The bulletin was published to accompany the new colored geologic map of Oklahoma, compiled by H. D. Miser of the United States Geological Survey. Therefore, if the work contains errors, corrections should be made as early as possible.

In the northeastern Oklahoma province the formations discussed include "Ordovician dolomite," Burgen sandstone, Tyner formation, St. Clair marble, Sylamore sandstone and Chattanooga shale. Sylamore sandstone is not shown in the index, presumably by oversight. In the Arbuckle Mountain province the formations discussed include Arbuckle limestone, Simpson formation, Viola limestone, Sylvan shale and Hunton formations. Some reference will be made to the Woodford formation which overlies the Hunton. The various producing horizons of the so-called "Wilcox" sand series of northeastern Oklahoma oil fields are carefully correlated with the formations of these two provinces. This has been accomplished by comparing drill cuttings with outcrop specimens. Samples from the many deep wells in this area furnish a conducting link between the northeastern and south central provinces. This has made possible a more accurate correlation of the formations of these two areas than that shown in the index.

In addition to this the map accompanying this report records the subsurface relations and extent of these formations over the northeastern quarter of the State. Control of formation boundaries has been established in the main by an examination of well cuttings at many points. Between these points the boundaries have been projected on a basis of well records and structural conditions. In some areas positive data are so meager that accurate mapping is not possible at this time. For this reason the detail of the map is much more accurate in its central portion than in the eastern and western extremities. In some places errors several miles in extent will doubtless be found in the location of a boundary. Great hesitancy is sometimes felt in the publication of such a piece of work for which more accurate data continue to be obtained. However, if this rough draft may be used as a guide for the future preparation of a more accurate map, for which data will be collected for many years to come, it will be a great step forward toward a better understanding of Oklahoma geology.

Pre-Chattanooga (Wilcox Sand) Series

For a description of the confusion which arose in connection with the earliest production from pre-Mississippian formations the reader is referred to the opening statements of Aurin, Clark and Trager. In that paper the Burgen sandstone was not differentiated from the Tyner formation and the "Wilcox" sand was correlated with the Tyner. Consequently they referred all pre-Mississippian production to the Tyner or to the underlying Ordovician silicious limestone. Since that time it has been possible to differentiate the Burgen and Tyner over broad areas. It has also become apparent that the "Wilcox" sand rests upon the Tyner and should not be correlated with it. The Burgen, Tyner and Wilcox are the northern equivalents of members of the Simpson formation. There are also members of the Simpson younger than the "Wilcox" which have recently yielded limited production. For lack of a more definite term these beds are referred to as the Post-"Wilcox" Simpson.

The Hunton formation was first pointed out as a producing horizon by George D. Morgan in his report on the Maud well. Since that time it has yielded greater production in other areas. The youngest member of the "Wilcox" group is the Sylamore sandstone known as the "Misener" sand. All of the formations mentioned above have been confused with the "Wilcox" sand. Geologists and operators have endeavored to untangle this complex situation and in doing so they have given the different producing horizons oil field names which together with their formation equivalents and age are:

Producing Horizons

Oil Field Name	Formation Equivalents	Age
"Misener" Sand	Sylamore Sandstone	Early Mississippian
"Hunton Lime"	Hunton Formation	Siluro-Devonian
Post-"Wilcox" "Wilcox" Sand		
Green Series or "Irish" Sand	Tyner Formation	Upper and Middle Simpson Formation	Ordovician
"Hominy" Sand	Burgen Sandstone	
Silicious "Lime" or "Turkey Mtn." Sand	Eroded Surface of Arbuckle Limestone	Cambro-Ordovician

These producing horizons range in age from Cambro-Ordovician to early Mississippian. Several of them are in no way related to the "Wilcox" sand. Others are limestones and not sand at all. They vary greatly among themselves in their value as a source of oil production. The average production per acre from the "Wilcox" sand, for example is several times greater than that of the others. For these reasons the term "Wilcox sand series" appears misleading. Some such group name is desirable, however, for the sake of convenience and therefore the name pre-Chattanooga series is suggested. This term appears fitting since each member of the series is at some place, in northeastern Oklahoma, overlain by the Chattanooga under normal conditions.

Arbuckle Limestone

The Arbuckle limestone or its equivalent probably underlies most of Oklahoma as well as adjoining states. As revealed in well cuttings it consists of medium or fine crystaline dolomitic silicious limestone. After boiling in acid the residue will consist largely of quartz fragments with an occasional quartz crystal. This suggests vein quartz or drusy cavities, such as may be observed at the Spavinaw outcrop. True sand grains are seldom found in average well samples although the formation is known to contain some thin beds of sand. Samples of this material from widely separated wells resemble each other so much that it is difficult to distinguish.

The Arbuckle limestone probably suffered erosion in northeastern Oklahoma during early Simpson time. Evidence of this is found for example in Tulsa County and surrounding territory where many wells find only 50 to 500 feet of Arbuckle before granite is encountered while in the Arbuckle Mountains to the south the same formation is more than 5,000 feet thick. Morgan discovered evidence of this period of erosion in his study of the Simpson in the Stonewall quadrangle. Referring to the thickness and character of the Simpson he states "the absence of the lower portion of the Simpson formation to the north and the more elastic nature of subsequent portions of the formation in that direction, suggest an Ordovician land mass to the north of the Arbuckle area over which the Simpson sea gradually encroached." The Arbuckle limestone suffered further truncation at the close of Devonian time over that portion of northeastern Oklahoma and southeastern Kansas where it is considered at the base of the Chattanooga. This period of erosion was very intense because it was during this time that all of the pre-Chattanooga formations were beveled and baselevelled.

Older Beds

From this description it may be seen that much older beds of Arbuckle limestone will be found in contact with the overlying formations to the north than to the south. In this connection Dr. Sidney Powers collected some fossils from the Ordovician dolomite at Spavinaw which were identified by R. D. Mosler, of the United States Geological Survey, as Turritoma milaniformis and Orospira bigranosa, Liospira, which belong to Ulrich's "Swan Creek zone" of the Cotter formation in Missouri of Canadian age. For these reasons the Ordovician dolomite at Spavinaw is correlated with middle or lower Arbuckle rather than upper.

The truncated upper surface of Arbuckle beds described above is what is known as the "Turkey Mountain" sand or the "Silicious lime." Therefore, it does not consist of the same bed of Arbuckle at any two places except where producing areas occur along the strike of the Arbuckle beds. The porosity of this horizon is due to its dolomitic nature and to weathering. This accounts for the high initial production and quick recovery shown by wells producing from this zone. In fact the performance of wells is often accurately ascertained to be coming from the "Silicious lime" before samples can be obtained. Such wells seldom require much "drilling in." This horizon needs only to be punctured to obtain remarkably high production for the depth at which it is encountered. In this respect it is similar to most other limestone production.

Burgen (Hominy) Sandstone

Some students of this problem believe it is impractical to attempt the differentiation of Burgen sandstone in well cuttings from the overlying Tyner formation. The writer's observations in this respect are as follows: All complete sets of samples examined from wells drilled to the Arbuckle sandstone in that territory south of the northern boundary of Burgen sandstone shown on the pre-Chattanooga map and northeast of Okmulgee show various amounts of "Wilcox" sand beneath which occur about 100 to 150 feet of green sandy shales with red streaks. Below this formation a bed of sandstone averaging 50 feet or more in thickness is encountered before penetrating Arbuckle limestone. No "Wilcox" sand will be found north of its northern boundary of course and from this point the thickness of the green sandy shale decreases northward due to erosion. But in every case a bed of sand is found below the green series before Arbuckle is reached. Some of these wells are only a few miles west of the Tahlequah exposures of Tyner and Burgen and since a series of green sandy shales overlying a bed of white sandstone is such a remarkably close parallel to the aspect of Tyner overlying Burgen as observed at the outcrop the differentiation and correlations suggested in well cuttings appear unquestionable.

The Burgen may be absent locally due to the fact that exceptionally high areas were not submerged below the northward advancing Ordovician sea until after Burgen time.

In character the Burgen sand is often so well cemented and glassy that it approaches quartzite. When broken down its grains are found to be a heterogeneous mixture of very large and very small rounded grains with etched surfaces, with enough angular grains of various sizes thrown in to make it a good mixture. For a better description and illustration of this feature the reader is referred to the excellent work of Messrs. Trowbridge and Mortimer as reported in Economic Geology Vol. 20, No. 5 in a paper entitled "Correlation of Oil Sands by Sedimentary Analysis."

The Burgen sandstone was first called "Hominy" sand because it was thought to be the principal source of deep production around the town of Hominy in Osage County. Since that time, however, it has developed that most of that production was probably coming from the underlying

(Continued on Page 110)

INTENSIVE STUDY FOR MORE EXACT DETERMINATION AND CORRELATION

The memorable paper by Aurin, Clark and Trager entitled "Notes on the Subsurface Pre-Pennsylvanian Stratigraphy of the North Mid-Continent Fields," published in 1921 in A. A. P. G. Bulletin, Volume 5, contained the first masterful presentation of a study of the pre-Mississippian stratigraphy of northeastern Oklahoma. Since this beginning many geologists in Oklahoma have been studying the lower oil producing horizons in great detail by means of microscopic and mineral analysis of drill cuttings from the deeper wells throughout the State. This intensive study has led to a more exact determination and correlation of the so-called "Wilcox" sand series than has been possible before. This paper is a summing up of these later conclusions. In no sense is it exclusively the work of the author.

Should an attempt be made to offer acknowledgment to all those who have been of assistance in the preparation of this paper it would be necessary to read practically the roster of the Tulsa Geological Society as well as the names of many men in Ponca City, Okmulgee, Bartlesville and many other cities. So many friends have contributed materials, information and a free exchange of ideas that to enumerate them would appear boastful. The author cannot safely claim originality for a single idea contained in these pages. He has freely called upon his best friends for their most secret bits of information and the results are published in this paper. Apology is made for the frequent repetition of ideas first mentioned by Aurin, Clark and Trager.

*Before American Association of Petroleum Geologists, Dallas, Tex.

Michigan's Chance for Commercial Oil

Record of Tests Drilled in State, Study of Structures and General Conditions From An Operating Standpoint

By Whit

Many tests for oil and gas have been made in various parts of the State of Michigan, at least close to 200 wells drilled can be accounted for. While the success of the wildcatters was not up to expectations, they still feel as though the State some day would develop oil pools similar to those found in the southern fields of Kentucky and Tennessee. No fields of any great size or covering any wide area of territory are expected, instead small pools are looked for as Michigan has the anticlines and domes, but whether they contain either oil or gas or neither, remains to be seen. Nearly every well drilled to any great depth in the State has either made a showing of one or the other, which shows that both oil and gas exist there, but seldom are found in commercial quantities.

Late in 1925, the Saginaw Prospecting Co. drilled two wells at the northern edge of the city of Saginaw and found commercial oil in both and during January of the current year, drilled in No. 3 well. The wells found their oil in the Berea grit at an approximate depth of 1,830 feet, and were reported with a flush of about 30 bbls. each. These are without doubt the best oil producers yet completed within the boundary of Michigan. They are reported to still be doing around 20 bbls. daily each, meaning that they have quite a storage of crude below to draw from. During the coming spring there should be numerous tests started as the prospects for a field appear good.

In the vicinity of Petersburg, in the western part of Monroe County, some few years ago, several tests were made, two showing oil. One well in particular, on the Frank Roe farm, would make a commercial producer if pumped regularly. This oil was found in the Trenton lime at around 2,107 feet.

In drilling for oil or gas in Michigan one should pay particular attention to the geological conditions before starting work on any well, for while Michigan has structures it does not mean that every hill was a structure, for in that case almost the entire southern part of the State would be a structure.

Early last fall seven locations for tests were staked out in the western part of Monroe County, but not by geologists. Later a well known geologist hearing of the locations made a trip over the area and pronounced each location on structures.

Various Wildcats

For a number of years prior to 1920 petroleum was produced from a few wells in the Port Huron area. The wells were very small with an initial yield of from 3 to 7 bbls. per day, but the production rapidly decreased to an average of about one-half barrel per day. Most of the wells yielded sufficient gas for motive power in pumping the wells and drilling new ones. This cheap motive power plus the fact that the wells were shallow made operations profitable for the only producer, the G. B. Stock Xylite & Grease Co. The company operated 22 wells and used the oil in the manufacture of lubricants. However, in 1919 and 1920 when the company's land became valuable for real estate purposes the wells were abandoned and petroleum production ceased in Michigan, until the recent wells of the Saginaw Prospecting Co., near Saginaw, were completed and put on the pump.

Despite the abandonment of the only commercial wells and the fact that there was no important production of oil or natural gas in Michigan at that time, there has been a revival of interest in the search for paying quantities of them during the past few years. This has been most noticeable in five regions: The southeastern part of the State which is but a short distance north of production in Ohio, the territory north and west of Port Huron and Mt. Clemens, Seul Choix Point east of Manistique, Manistee and Saginaw Counties. There is much in the general structure of the State and in the history of similar enterprises to discourage drilling for oil in any of these areas but with a nation-wide campaign for new oil production they will undoubtedly be tested more thoroughly. The results reported have not been of immediate commercial importance but they will be summarized to some extent for the information of property owners and drillers.

Five deep test wells have been completed in southeastern Michigan since 1920, by the Deerfield Oil & Gas Co. and its successor the W. K. Development Co. None has proved a steady producer but some encouraging signs and showings of oil have been encountered. The anticipated production is from the Trenton. The last well was completed there in December, 1921, and after given a shot filled up a few hundred feet with oil and water and when put on the pump showed 4 bbls. a day. One other well of this group produced a small amount of oil, the pumping tests indicating a production of about 4 bbls.

Near the town of Temperance the Bedford-Erie Oil & Gas Co., completed two wells to the Trenton and found a showing of oil.

Near Blissfield, the Blissfield, Riga and Ogden Oil & Gas Co., completed one well which, according to the president of the company, Otto Wagner, penetrated 200 feet of Trenton without finding free oil or gas.

One mile north of Devil's Lake, near Cement City, a well was drilled by the Prospect Hill Development Co. The Dundee formation was reached at 1,560 feet, but no free oil was found. Around 1,200 feet a nice gas sand was encountered when the writer was present at the test, but contained no pressure or volume to speak of.

A well was drilled by the Schoolcraft Development Co. at Seul Choix Point, in Schoolcraft County, reaching the Trenton at 1,020 feet, where considerable water was encountered, but there was no signs of oil reported.

A deep well was completed near Chesterfield, Macomb County, by the Macomb Oil & Gas Syndicate. The Trenton was reported at 3,500 feet, and small unimportant showings of oil from 2,610 to 2,710 feet. As the surface of the Trenton in southeastern Michigan is very irregular, a number of wells rather closely spaced are needed to determine its attitude. It is probable that more tests will be made in the Mt. Clemens-Port Huron region as well as in western Monroe County.

A well was drilled near Brown City, Sanilac County, to an approximate depth of 2,500 feet, but did not make a producer. The only discovery of gas reported was from Clawson, Oakland County, where a water well reached a gas pocket at about 90 feet. The heavy flow of gas blew the tools, ignited, burned down the farm house adjacent and was finally capped. The shallow depth indicates that it comes from the Antrim formation which occurs in this region under the cover of sand, gravel and clay.

Freak Gas Well

Some interesting reports are made of some of the old-time gas wells drilled on the banks near the St. Clair River. On W. H. Steven's farm one well was drilled 250 feet deep when a large flow of gas was struck. Mr. Stevens noticed something queer about the smell of the well, though he did not suspect that there was gas, as he was looking for water. As he struck a match to light a cigar he was immediately surrounded by flames. The workmen ran away and went into the barn. The gas from the well taking fire began to blow out sand and boulders, some of the latter as large as a man's two fists. As they came dashing through the roof of the barn they caused the men to leave at once. The stream of mud, sand, water and gas shot upward for a long distance, the water from 50 to 100 feet, where the gas seemed to separate and ignite in a solid column 30 to 40 feet in diameter, reaching upward for a long distance. A newspaper could be read a mile away even on a dark night.

After the boulders ceased to blow out, the men succeeded in shutting in the well with a casing head with a pipe having a T with a cock on the horizontal branch. After the vertical outlet was securely closed they opened this cock and permitted the gas to escape from the pipe and lighted it again. The flame shot out 200 feet, passing over the railroad track. In the evening the train came along and whistled "down brakes," and did not care to proceed until Mr. Stevens and the train men had walked along the track under the flame to see that it was perfectly safe. In the spring of 1885 the gas was shut off and securely fastened for fear that it might burn everything during the dry season.

Antoine Halin had a farm 2½ miles west of Marine City, and in 1877 or 1878 he struck gas, which did not smell of sulphuretted hydrogen, in a hole 130 feet deep. It blew with great force and formed a cavity 15 feet across, but after several weeks gradually weakened, and, though still yielding a little gas, a few years ago, is used as a fresh water well. The gas came from between the rock and the clay and blew out one stone 8 inches in diameter, and made a pile of sand 3 feet deep for 20 feet around. He burned it in his house three or four years, although when one rock came through the roof of his house he was very much frightened and would have taken a very small price for his farm. The ground trembled for some distance around and the roar could be heard for 2 miles.

So also 4½ miles west of Marine City,

TABLE OF FORMATIONS IN MICHIGAN

System	Formation	Maximum Thickness in Feet	Character
	Woodville	95	Red sandstone and shale. Fresh water.
	Saginaw	525	White and gray sandstone, white, blue, gray and black shale, coal, thin limestone lenses with nodules of siderite, pyrite and macasite. Water fresh except in Saginaw valley Extremely variable in section.
Pennsylvanian			
	Parma	223	White and gray sandstone and a conglomerate with small pebbles of white quartz. Sulphate and fresh water.
	Bayport	100	White, bluish and gray limestone locally cherty; white sandstone, locally limey. Sulphate water.
	Michigan	460	Blue to gray limestone and dolomite, blue, black and light green shale, gypsum, red shale and red sandstone.
	Marshall	485	Upper Marshall, (Napoleon), white and gray standstone with mica and sometimes pyrite. Fresh water near margin of basin; strong bromine water near center.
			Lower Marshall. In eastern part of basin white, gray and red fossiliferous and mocaseous sandstone, greenish gray gritstones and conglomerates with small pebbles and red and blue shale. In remainder of basin red sandstone and blue shale with mica and siderite. Locally water bearing.
Mississippian			
	Coldwater	1,090	Blue and gray shale with large concretions of siderite near the top; lenses of fine grained sandstone. (Lenses of limestone in western part of basin) and streaks of red shale.
	Sunbury	103	Brown to black shale.
	Berea	273	Confined to eastern half of basin. White to gray sandstone locally coarse. Salt water, gas and oil.
	Antrim	510	Black shale with blue shale members. Concretions of siderite and dolomite, nodules of pyrite.
	Travers	681	Variable section of limestones and shales. Fresh water.
	Bell	80	Blue or black shale with thin limestone members (fossiliferous).
Devonian			
	Dundee	255	Gray and buff limestone, sometimes cherty; fossiliferous and bituminous. Sulphate water and brines.
	Detroit River	435	Gray to brown dolomites and limestones. Fresh and mineral waters.
	Sylvania	300	Pure white sandstone and sandy dolomite. Fresh and mineral waters. Lacking in northwestern part of State.
	Bass Island	522	Gray dolomite and shale. Fresh and mineral waters.
	Saline	1,446	Dolomite, rock salt, anhydrite and red, green, blue and black shale.
Silurian			
	Guelph and Lockport	580	White to blue, buff and gray dolomites and limestones. Fresh water.
	Rochester	80	Blue shale.
	Clinton	130	Red shaley limestone.
	Cabot Head	205	Red, blue and greenish blue shale.
	Manitoulin	150	Gray dolomitic limestone.
	Richmond-Queenston	270	Red and blue shale locally sandy; fossiliferous.
	Lorraine-Eden	325	Blue and very dark blue shale. Fossiliferous.
	Collingwood	300	Black shale weathers brown to gray.
Ordovician			
	"Trenton" (Black River-Lowill)	875	Bluish gray to brown limestone and dolomite, sometimes shaley; fossiliferous. Fresh water.
	St. Peter	75	White sandstone loosely cemented. Fresh water.
	Beekmantown	250	White dolomite sandstone, white sandstone, buff to red dolomite. Fresh water.

the same distance south of Port Huron, near Swan Creek, and in other places in the neighborhood, wells down to the rock have furnished gaseous fuel for some years. Another similar well was found at Norris, near Detroit.

Oil and Gas Possibilities

According to reports made by W. I. Robinson, of the Michigan Geological Survey, who has made an exhaustive study of conditions in the entire State with the exception of the western half of the Upper Peninsula and of the country where Michigan rivers drain into Lake Superior, is classed as possible oil and gas territory but production from most of it is extremely improbable; in fact no one should be encouraged to drill within the State with immediate production in mind. Three fundamental conditions are recognized as necessary to regions productive of oil; a rock layer rich in petroleum, openings in the rock which may be either large or small but which must have communicating pores or channels through which the oil may move and finally some enclosing structure which prevents the escape of the oil and gas to the surface or its dissemination through overlying or underlying beds of rock and allows its accumulation until it fills the pores or channels.

It will be readily understood that one of the simplest and most effective structures which will meet these requirements and cause an accumulation of oil and at the same time prevent its escape in an arching up of rock layers, the top layer being dense and with few openings of any kind through which oil or gas can move, the lower layers being porous and containing oil and gas and water. Since oil and gas are lighter than water they tend to work upward in such a structure until finally the upper part of the porous rock becomes saturated with oil and gas and the gas works up until it accumulates next to the overlying dense rocks.

An arching up of rock beds is called an anticline and this is considered as one of the best structures to test by deep drilling if there is any reason to believe that there is an oil bearing rock layer which is porous and has a cover of dense rock within reach of the drill. Such an arching of the rock or anticline may often be determined from shallow drilling; several of the Michigan anticlines have been first noticed in water wells. In only one case has the presence of an anticline been determined from surface observations within the State because there is a thick cover of sand, gravel and clay which hides nearly all of the surface rocks. The writer from surface indications pointed out a high spot of an anticline on which a well was drilled to a depth of 2,000 feet, on the Silver farm, a short distance east of the town of Napoleon, in Jackson County, several years ago. This well has not yet been completed and its point was to reach the Trenton and may be drilled to that formation in the near future. In this test the Berea sand was passed through, but had no thickness to hold either oil or gas in any quantity, although a considerable flow of gas showed up.

Michigan Geology

The arrangement of hills and valleys depends on the deposition and later wearing away of this cover of loose material and so it would certainly be poor reasoning to say that because there is a hill in some region we must expect an arching of the rock underneath. The fact is that experience has proved that there is no relation in Michigan between the slopes of the surface and the slope of the hard rocks except in those rare cases where there is no cover of the loose materials and the hard rocks appear at the surface just beneath the soil. One of the most frequent errors which have led in the past to expensive drilling in hopeless territory is the mistaking a hill for an anticline. Drillers who enter the region from the oil fields of the south and southwest should bear in mind that this thick cover of loose materials which is so characteristic of the lake country is lacking south of the Ohio River.

Of the three fundamental conditions which are noted as being necessary for

RESULTS OF DRILLING

The following table gives the results of wells so far as known that were drilled in different parts of the State of Michigan; the name of owner, named so far as known; county in which well is located and near what town wells were drilled; date of completion of wells by years, as near as can be found; formation; depth and whether showing oil or gas, or dry:

Owner, County and Location—	Year Drilled	Formation	Depth	Showings
Mason Lumber Co., Muskegon, Muskegon	1872	Coldwater	1,200	Oil
Mason Lumber Co., Muskegon, Muskegon	1875	Coldwater	1,200	Gas
Michigan Oil Co., Muskegon, Muskegon	1900	Coldwater	1,275	Oil
Ryerson-Hills, Muskegon, Muskegon	....	Coldwater	1,200	Gas
Ryerson-Hills, Muskegon, Muskegon	....	Coldwater	1,200	Oil
Robert Jackson, Muskegon, Ravenna	....	Coldwater	....	Oil and gas
C. A. Bailey, St. Clair, Port Huron	1886	Dundee	520	Oil
C. A. Bailey, St. Clair, Port Huron	1886	Dundee	572	Gas
C. A. Bailey, St. Clair, Port Huron	1886	Antrim	100	Gas
C. A. Bailey, St. Clair, Port Huron	1886	Travers	320	Gas
G. B. Stock, St. Clair, Port Huron	1898	Dundee	600	Gas
G. B. Stock, St. Clair, Port Huron	1898	Dundee	520	3 bbls. oil.
G. B. Stock, St. Clair, Port Huron	1910	Dundee	650	10 bbls. oil from 21 wells.
Unknown, St. Clair, Port Huron	....	Antrim	300	Gas
Unknown, St. Clair, Port Huron	....	Antrim	....	40 pounds pressure.
F. L. Wells, St. Clair, Port Huron	1887	Dundee	515	Oil
F. L. Wells, St. Clair, Port Huron	1887	Dundee	515	Gas
F. L. Wells, St. Clair, Port Huron	1887	Dundee	515	Oil
F. L. Wells, St. Clair, Port Huron	1887	Travers	290	Gas
G. W. Howe, St. Clair, Port Huron	1903	Antrim	300	40 pounds pressure.
Michigan Central Oil Co., St. Clair, Port Huron	1910	Dundee	565	Gas
Michigan Central Oil Co., St. Clair, Port Huron	1913	Dundee	....	½ bbl. oil.
Michigan Central Oil Co., St. Clair, Port Huron	1916	Dundee	620	Gas
Eureka Development Co., St. Clair, Port Huron	1907	Dundee	600	Oil
E. Heeke, St. Clair, Port Huron	1907	Antrim	....	Gas
L. M. Corner, St. Clair, Port Huron	....	Antrim	110	Dry
Reed Wrecking Co., St. Clair, Port Huron	1913	Dundee	487	400 pounds pressure.
Morton Salt Co., St. Clair, Port Huron	1916	Antrim	190	Gas
Mrs. J. Madill, St. Clair, Port Huron	....	Antrim	....	Gas
Lawrence Gillett, St. Clair, Port Huron	....	Dundee	700	Oil and gas
J. E. Ruff, St. Clair, Port Huron	....	Dundee	610	110 pounds pressure
J. Simon, St. Clair, Port Huron	1907	Antrim	....	Gas
Draper Manufacturing Co., St. Clair, Port Huron	....	Dundee	543	45 pounds pressure.
Stock Xilite Grease Oil Co., St. Clair, Port Huron	1913	Dundee	....	7 bbls. from 22 wells
Draper Manufacturing Co., St. Clair, Port Huron	1914	Dundee	564	⅛ bbl. oil.
Hughes Brothers, St. Clair, Harrison	....	No report	....	No report
Bath House, St. Clair, Marine City	1903	Antrim	200	25 pounds pressure
Unknown, St. Clair, Grand Trunk Junction	....	Dundee	710	Oil
Sweitzer & Co., St. Clair, Ft. Gratiot	....	Dundee	568	Oil
Shaw & Co., St. Clair, Ft. Gratiot	....	Dundee	557	Oil
F. A. Farr, St. Clair, Ft. Gratiot	....	No report	....	Unknown.
M. J. and L. J. Harrow, St. Clair, Algonac	....	Antrim	300	16 pounds pressure
Church & Co., St. Clair, Marysville	....	Dundee	588	Gas
J. A. Rowe, St. Clair, Marysville	....	Dundee	....	43 pounds pressure
George F. Howe, St. Clair, Kewahdin Beach	1903	Travers	395	Good, gas
Unknown, St. Clair, St. Clair	1873	Antrim	113	Gas
Unknown, St. Clair, St. Clair	1873	Antrim	113	Gas
Jason Shumway, Livingston, Fowlerville	1904	Saginaw	600	Gas
Henry White, Livingston, Fowlerville	....	Saginaw	136	Gas
Henry White, Livingston, Fowlerville	....	Saginaw	166	Oil
Unknown, Lapeer, Clifford	....	Unknown	2,400	Dry
Walker & Co., Lapeer, Imlay City	....	Coldwater	1,020	Dry
William Becht, Oakland, Redford	....	Berea	116	35 pounds pressure
William J. Purdy, Oakland, Redford	....	Sunbury	105	Gas
E. McHugh, Oakland, Redford	....	Sunbury	102	20 pounds pressure
Frank Parmenter, Oakland, Royal Oak	....	Antrim	108	¼ pound pressure
William Hilzinger, Oakland, Royal Oak	....	Antrim	115	39 pounds pressure
Henry Langer, Oakland, Royal Oak	....	Antrim	102	43 pounds pressure
N. E. Springsteem, Oakland, Royal Oak	....	Antrim	116	Not known
Louis Granzera, Oakland, Royal Oak	....	Antrim	108	39 pounds pressure
Edwin Landeau, Oakland, Royal Oak	....	Antrim	95	No report
E. A. Starr, Oakland, Royal Oak	....	Berea	....	No report
Pontiac Nat. Gas & Oil, Oakland, Pontiac	....	Dundee	1,497	Gas
Frank Grosjean, Oakland, Southfield	....	Berea	105	No report
R. G. Peters Lumber Co., Manistee, East Lake	1885	Monroe	1,905	Gas and oil
R. G. Peters Lumber Co., Manistee, East Lake	1885	Antrim	960	Oil
R. G. Peters Lumber Co., Manistee, East Lake	1908	Monroe	1,925	Oil
Peters Salt & Lumber, Manistee, East Lake	1886	Monroe	1,911	Gas
R. G. Peters, Manistee, East Lake	1908	Monroe	1,905	Heavy gas
Prosser & Co., Manistee, Portage Lake	....	Drift	399	Gas
N. & M. Transportation Co., Manistee, Portage Lake	....	Drift	450	Gas
H. W. Leonard, Manistee, Portage Lake	....	Drift	535	Gas
Showalter & Co., Manistee, Portage Lake	....	Drift	318	Gas
A. Lipkowski, Manistee, Portage Lake	....	Drift	418	Gas
Dunham & Co., Manistee, Portage Lake	....	Drift	510	Gas
Sands & Smith, Manistee, Portage Lake	....	Drift	537	Gas
Unknown, Manistee, Portage Lake	1901	Drift	....	Heavy gas
Clark & Co., Manistee, Portage Lake	....	Drift	470	Gas
H. W. Leonard, Manistee, Portage Lake	1913	Drift	437	185 pounds pressure
Stronach Lumber Co., Manistee, Stronach	....	Dundee	1,655	Oil
Stronach Lumber Co., Manistee, Stronach	....	Antrim	600	Oil
Stronach Lumber Co., Manistee, Stronach	....	Antrim	600	Gas
H. W. Leonard, Manistee, Onekama	....	Antrim	437	185 pounds pressure
McComb, O. & G. Synd., Macomb, Chesterfield	1922	Richmond	2,710	Oil
A. Smith, Macomb, Warren	....	Antrim	72	Gas.
A. R. Peters, Macomb, Warren	....	Antrim	93	45 pounds pressure
Franz Elwert, Macomb, Warren	....	Antrim	....	Gas
Max Wolgast, Macomb, Warren	....	Antrim	68	25 pounds pressure
Edward Jacob, Macomb, Warren	....	Antrim	60	80 pounds pressure
J. Dobberowski, Macomb, Warren	....	Antrim	....	25 pounds pressure
Franz Elwert, Macomb, Warren	....	Antrim	69	No report
August Mielke, Macomb, Warren	....	Antrim	98	No report
Henry Voles, Macomb, Warren	....	Antrim	60	No report
H. Martin, Macomb, Warren	....	Antrim	....	No report
Alex Warren, Macomb, Warren	....	Antrim	71	No report
Otto Jacobs, Macomb, Warren	....	Antrim	60	No report
William L. Hartsig, Macomb, Warren	....	Antrim	90	72 pounds pressure
W. H. Hanekow, Macomb, Warren	....	Antrim	72	No report
Franz Jancke, Roscommons, Roscommons	1914	Coldwater	673	Gas
Banner O. & G. Co., Washtenaw, Ypsilanti	1904	Detroit River	730	Gas
Madison O. & G. Co., Washtenaw, Madison	1905	Antrim	612	Gas
Banner O. & G. Co., Washtenaw, Ypsilanti	1904	Antrim	135	Gas
University, Washtenaw, Ann Arbor	1900	Dundee	800	Gas
H. E. Harman, Washtenaw, Augusta	....	Antrim	65	10 pounds pressure
Allegan G., O. & Min. Co., Allegan, Allegan	1899	Dundee	1,328	5 pounds pressure
Allegan G., O. & Min. Co., Allegan, Allegan	1900	Dundee	1,294	2 bbls.
Northern O. & G. Co., Allegan, Allegan	1912	Dundee	1,287	2 bbls.
Mackinac Lumber Co., Mackinac, St. Ignace	1887	Niagaran	899	Gas
Perre Marquette Lumber Co., Mason, Ludington	1885	Salina	2,200	Salt.
Thomas Percy, Mason, Ludington	....	Traverse	1,650	Oil and gas
Round Oak Gas & Fuel, Cass, Dowagiac	1887	Clinton	1,760	Dry
O. J. Davis, Shiawassee, Corunna	1885	Marshall	907	Dry
Edwin Adiska, Wayne, North Detroit	....	Unknown	....	Gas
R. Gersabek, Wayne, North Detroit	....	Unknown	100	Gas
J. Desgrandchamp, Wayne, North Detroit	....	Antrim	122	No report
L. W. Claire, Wayne, Detroit	....	Unknown	....	Gas
Detroit Nat. Gas Co., Wayne, Detroit	....	Antrim	165	Gas
Irving Becker, Wayne, Detroit	....	Antrim	65	No report
Church & Co., Wayne, Trenton	....	Travers	1,340	Gas
Laney & Churchill, Wayne, Wyandotte	....	Saline	1,500	Gas
Detroit Nat. Gas Co., Wayne, Northeast of Detroit	....	Wyandotte	770	Dry
Mr. Blackmar, Saginaw, Blackmar	1870	Berea	1,545	Gas
Saginaw Valley Co., Saginaw, Saginaw	1912	Berea	2,141	Gas
Saginaw Valley Co., Saginaw, Saginaw	1912	Dundee	2,955	Nos. 3, 4, 5, 4 bbls.
Saginaw Valley Co., Saginaw, Saginaw	1912	Travers	2,540	Oil
Saginaw Prospecting Co., Saginaw, Saginaw No. 1	1925	Berea	1,830	30 bbls.
Saginaw Prospecting Co., Saginaw, Saginaw No. 2	1925	Berea	1,830	30 bbls.
Niles O. & G. Co., Berrien, Niles	1908	Dundee	592	Oil
Unknown, Berrien, Niles	1885	Trenton	1,000	Oil
W. L. Connelly & Co., Berrien, Niles	1909	Dundee	518	Gas
Unknown, Berrien, Niles	1865	Dundee	700	Gas
Umholtz & Co., Berrien, Buchannan	1903	Travers	618	Gas
Bridgman O. & G. Co., Berrien, Bridgman	1904	Dundee	763	Gas
Benton Harbor Nat. Gas & Oil Berrien, Benton Harbor	....	Niagaran	1,205	Dry
Unknown, Alcona, Killmaster	1892	Berea	570	Gas
Unknown, Alcona, Killmaster	1892	Berea	570	Gas
H. C. McKinnon, Alcona, Black River	1892	Antrim	118	Gas
C. R. Alvord, Hilledale, Camden	1907	Unknown	....	Gas
C. M. Dewitt, Alcona, Osseo	....	Dundee	1,400	70 pounds pressure
C. M. Dewitt, Alcona, Osseo	....	Dundee	1,380	Gas
C. M. Dewitt, Alcona, Osseo	....	Travers	1,219	Gas
North American Chemical Co., Bay, Bay City	1898	Travers	2,734	Gas
John Mason, Bay, Bay City	1886	Dundee	2,865	Oil
Grand Rapids Artesian Well Co., Kemt, Grand Rapids	....	Antrim	1,708	Oil and gas.

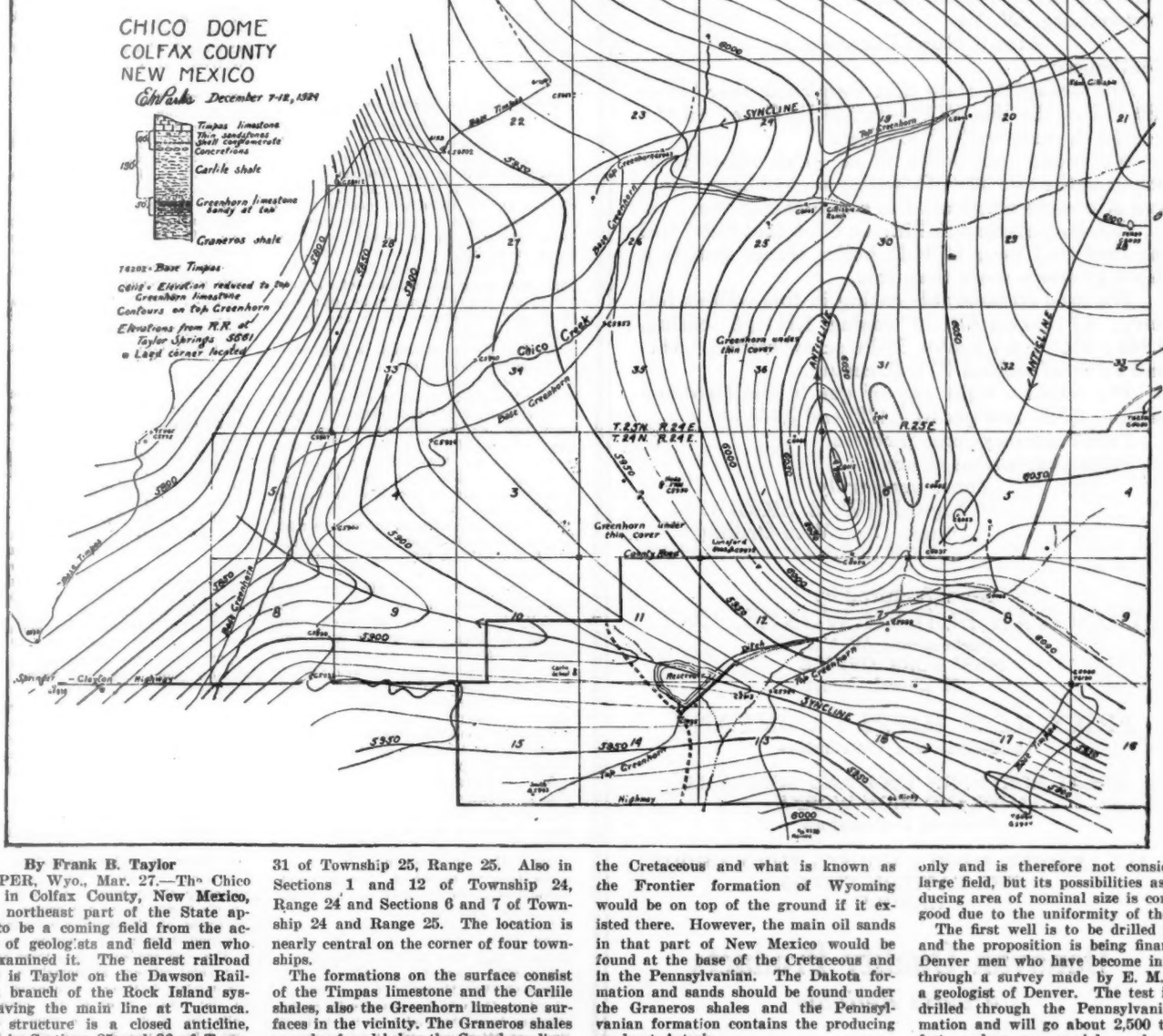
Hon. L. Lyon, Kent, Grand Rapids	....	Marshall	265	Water.
Connor & Callender, Barry, Assyria	1903	Antrim	1,525	Gas
Sanitarium, Gratiot, Alma	1889	Travers	2,863	Gas
E. W. Lane, Charlevoix, Advance	....	Unknown	....	No report
W. F. Braun, Isabelle, Mt. Pleasant	1913	Berea	2,590	Gas
W. F. Braun, Isabelle, Mt. Pleasant	1913	Berea	2,590	Oil
J. Wiggin, Lenawee, Britton	....	Antrim	90	35 pounds pressure
S. E. Bailey, Lenawee, Palmyra	1904	Antrim	136	Gas
Cleveland Parties, Lenawee, Devils Lake	1921	Dundee	1,600	Gas
Adrian Gas Co., Lenawee, Adrian	....	Monroe	1,650	Dry
Unknown, Alpena, Alpena	....	Monroe	1,025	Dry
Kalamazoo N. G. Co., Kalamazoo, Kalamazoo	1887	Dundee	1,490	Oil
Milwaukee Oil Syndicate, Delta, Rapid River	1904	Trenton	300	Oil
C. L. Rowe, Benzie, Beulah	....	Antrim	205	No report
A. G. Butler, Benzie, Frankfort	....	Dundee	1,800	Dry
Sheperd & Higby, Eaton, Charlotte	....	Monroe	2,209	Dry
Dr. J. H. Bennett, Branch, Coldwater	....	Travers	1,200	Dry
Levi Dodge, St. Joseph, Constantine	....	Dundee	1,089	Dry
Worthington-Crosby Mfg. Co., Jackson, Jackson No. 1	....	Monroe	2,465	Gas
Fred Saeger, Jackson, Jackson No. 2	1883	Monroe	2,174	Gas
Unknown, Jackson, Jackson No. 3	1884	Monroe	2,100	Found oil at 1,395 feet.
Jackson County Oil & Gas Co., Jackson, Napoleon	1923	Shut down at 2,000 feet.		
Monroe City Lot, Monroe, Monroe	1890	Trenton	1,765	Gas
Stone Quarry, Monroe, Monroe	1891	Trenton	1,800	Gas
Dundee Oil Synd., Monroe, Dundee	1888	Trenton	2,133	Oil
Kirkbride Bros., Monroe, Erie Township	1899	Trenton	1,555	Oil and gas
S. Van Akin, Monroe, Ida	1892	Mass Island	480	Gas
Strausburg O. & G., Monroe, Strausburg	1907	Trenton	1,950	Oil
Erie-Bedford O. & G., Monroe, Temperance	1920	Trenton	1,690	Oil
Deerfield O. & G. Co., Monroe, Deerfield	1920	Trenton	2,105	4 bbls. oil
W. K. Development Co., Monroe, Deerfield	1921	Trenton	2 060	4 bbls. oil
Erie O. & G. Co., Monroe, Near Erie	1922	Trenton	1,800	Dry
Jackson County Oil & Gas Co., Monroe, Dundee	1925	Shut down top Trenton.		
Saginaw Prospecting Co., Saginaw, Berea No. 3	1926	Berea	1,830	30 bbls.

important accumulations of oil and gas, two are often characteristic of Michigan rocks. A number of formations have been found to contain petroleum and in several its presence is quite usual; some of them are porous sandstones or dolomites with many communicating openings large enough for the free movement of liquids. The third condition, an impervious roof, is often found but its shape is usually wrong for a container and we must conclude that in most cases where tests have failed in favorable territory the oil and gas have moved up to the surface following a slope of the impervious member or that they have moved out to regions more favorable to their accumulations such as the Ontario Fields of Canada or the Lima Field of Ohio.

Gradual Migration

It is this point of structure which is so discouraging to oil operators in Michigan. The whole territory described above as possible oil territory is underlain by rocks which dip regularly and gently toward the central area in Clare, Gladwin, Isabella and Midland Counties, forming a basin which is the reverse of an anticlinal structure and is one of the least encouraging structures for the accumulation of oil and gas of which it is possible to conceive; but it is one of the structures which is most certain to favor a gradual migration of oil and gas up the dip to the surface of the neighboring anticline. This large basin reaches to the lakes and to the south nearly, if not quite, to the Ohio line. Other conditions which may

CHICO DOME, COLFAX COUNTY, N. M., HAS PROMISING INDICATIONS



By Frank B. Taylor

CASPER, Wyo., Mar. 27.—The Chico Dome, in Colfax County, New Mexico, in the northeast part of the State appears to be a coming field from the accounts of geologists and field men who have examined it. The nearest railroad station is Taylor on the Dawson Railway, a branch of the Rock Island system leaving the main line at Tucumca.

This structure is a closed anticline, located in Sections 25 and 36 of Township 25, Range 24, and Sections 30 and 31 of Township 25, Range 25. Also in Sections 1 and 12 of Township 24, Range 24 and Sections 6 and 7 of Township 24 and Range 25. The location is nearly central on the corner of four townships.

The formations on the surface consist of the Timpas limestone and the Carlile shales, also the Greenhorn limestone surfaces in the vicinity. The Graneros shales are also found below the Greenhorn lime.

This places the top of the structure in the Cretaceous and what is known as the Frontier formation of Wyoming would be on top of the ground if it existed there. However, the main oil sands in that part of New Mexico would be found at the base of the Cretaceous and in the Pennsylvanian. The Dakota formation and sands should be found under the Graneros shales and the Pennsylvanian formation contains the producing sands at Artesia.

The structure has a closure of 100 feet only and is therefore not considered a large field, but its possibilities as a producing area of nominal size is considered good due to the uniformity of the dome.

The first well is to be drilled at once and the proposition is being financed by Denver men who have become interested through a survey made by E. M. Parks, a geologist of Denver. The test is to be drilled through the Pennsylvanian formation and will go about 2,500 to 3,000 feet, unless commercial production is found beforehand.

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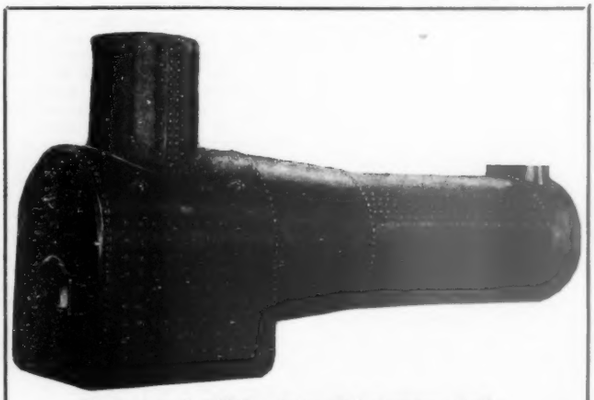

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We discontinued drilling at 7,756 feet but I feel satisfied that your 80-H.P. boiler would drill to a depth of much more than this.

We used considerable casing in this well as follows: 14″ casing 67′; 10″ casing, 1,111′; 8″ casing, 3,905′; 6⅝″ extra heavy, 30-lb. screw casing, 6,342′, and 6,785′ of welded 4″ I. D. casing.

We found a light pay of gas in the Oriskany sand at 6,827′ and gas at 7,428′ and 7,441′.

I am enclosing some pictures.

With best wishes, I am,

Yours very truly,
Signed: (W. E. SIGGINS)
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offer additional chances in spite of this large unfavorable aspect would be a considerable flattening of the dip some distance in from the basin forming a terrace or bench or a local dense portion of one of the porous layers which would impede the upward and outward migration of liquids and gases. These conditions have not been reported in exploration. Again there may be in some places small folds near the border of the basin which would cause a local concentration and the accumulation of small pools.

Several folds have been partially outlined by deep drilling, notably at Saginaw, Port Huron-St. Clair and in the western part of Monroe County. One has been demonstrated from surface observations at Seul Choix Point, Schoolcraft County. As a general rule, however, these folds are influenced to such an extent by the shape of the large basin that their axes point in toward its center and although they offer a favorable structure for the accumulation of oil and gas they also offer as easy a channel of escape to the outcrop, or to adjacent areas. A large amount of drilling would be needed to outline these folds and to demonstrate whether there are irregularities in the pitch of their axes which are important enough to cause an accumulation of oil and gas. These small folds are not the usual type caused by lateral pressures but are more of the nature of wrinkles in the border of the basin and are primarily due to vertical forces involved in the stress relations of the large feature. In the southeastern part of the State there is an exception to this rule for there the problem is complicated by an older folding involved in the formation of the Cincinnat arch which lies just to the south.

Formations Containing Oil and Gas

1. The Saginaw formation, the Michigan coal bearing series, contain some coals high in volatile matter and in one instance, a drilling at Fowlerville has yielded a showing of oil. As this formation is at the surface, is deeply eroded and is composed of lens-shaped beds of small lateral extent, it is not considered to be promising.

2. The Sunbury formation, a brown shale containing considerable volatile matter, is of too fine a grain to be considered as a producer of free oil or gas in important quantities.

3. The Berea formation, a gray sandstone containing a pure salt brine and with enough openings to allow a free flow of brine into wells, is bounded above and below by bituminous shale (the Sunbury and Antrim formations) and has been considered to be one of the most promising gas horizons. It produced some gas at Blackmar, Bay City and Killsmaster but in the late drilling at Saginaw was found to contain oil in commercial quantities in operations made by the Saginaw Prospecting Co. during the latter half of 1925 and the starting of 1926.

4. The Antrim shale often yields oil and gas signs to the overlying drift, especially in southeastern Michigan where the gas has been found in sufficient quantities to supply single homes for several years and also in the western part of the State. The local nature of these gas reservoirs is revealed by their rapid depletion. Because of the irregular distribution of the drift, prospecting is more a question of trial and error than of intelligent search.

5. The Traverse formation offered several showings of oil in the Saginaw district and some gas at Port Huron, Osseo, Ypsilanti, Bay City and Alma. It is usually composed of hard limestone and dense shales through which liquids and gases could not penetrate. Locally porous limestones or sand lenses in this formation might yield oil.

6. The Dundee formation, a limestone, nearly always has an odor of petroleum and has produced free oil in noteworthy quantities at Allegan, Saginaw and Port Huron. It is a producer of oil in Ontario but no steady production has been obtained from it within the State of Michigan with the exception of a group of small wells which operated for a number of years near Port Huron. As this formation occurs near the surface in southeastern Michigan testing is not expensive and a number of wells have been drilled with this intention.

7. The Detroit River formation (Upper Monroe) yielded free oil at Kalamazoo and East Lake (Manistee) but in small quantities.

8. The Niagaran has produced oil and gas in Ontario but there has never been any indication of oil or gas in Michigan in the few cases where wells have penetrated to its depth.

9. The Richmond has never yielded oil or gas except for oil showings provisionally referred to this formation at Chesterfield.

10. The Lowville and Black River formations (the Trenton formation) have yielded oil and gas showings in several points in Monroe County and signs of oil have been noted at their outcrop near Rapid River in the Upper Peninsula.

The Berea, Dundee and Trenton offer possibilities worthy of consideration and one or more of these might furnish oil if a structure could be found which would accumulate and hold it.

EFFECTIVE GROUNDING OF OIL STORAGE TANKS

By E. R. Schaeffer*

Tank fires apparently set by strokes of lightning raise the question of effective grounding, or electrical connection with the earth, of oil storage tanks. The ground under a tank is usually oil soaked for a depth of several inches and in some instances for a foot or more. This oil is, of course, a dielectric, but its insulating effect is more than offset by the fact that the ground inside the fire wall is quite moist during the greater part of the year. In the case of a 55,000-bbl. tank, over 10,000 square feet of its surface rests on the ground and the several connecting pipe lines present a far greater area to the earth than would be possible with an ordinary grounding plate or cone. The gasket on a pipe flange is no doubt a good insulator but electrical contact is secured through the bolts connecting the flange with the tank.

During May and June, 1925, a number of resistance measurements were taken in Mid-Continent fields and in every case the low values of the resistance measured indicated that the tanks were effectively grounded.

At the same time some preliminary measurements were made to test the effectiveness of the Johns-Manville grounded conductor network. The technical details of this network and the research which led to its development will be announced later. For the present purpose it is important only to see that the method of attaching the network to the tank does not involve a high resistance since any such resistance would reduce the value of the system to a considerable extent. This was easily determined at the time measurements were made on the grounding of tanks.

When connections were made to the network, ten or more turns of No. 18 copper wire were wound on one of the radials about five feet from the steel cable at the top of the vertical brackets. Several inches of the radial wire, which is No. 9 galvanized, were roughened with a file before making the copper connection. All other connections, such as those made to the shell of a tank or a pipe line, were soldered.

The resistance was measured in each case by the Leeds & Northrup dial form, box bridge. A small e.m.f. was usually encountered in the ground measurements, the effect of which was eliminated by reversing the cell or by introducing an opposing electro-motive force in the unknown resistance of the bridge. The resistances of the connecting wires were subtracted from the measured results.

The first measurements were taken at the Tidal refinery, Drumright, Okla., and were made between a connection on one of the radial wires of the network on tank No. 2 and a gas pipe about 120 feet from the tank. The junction at the

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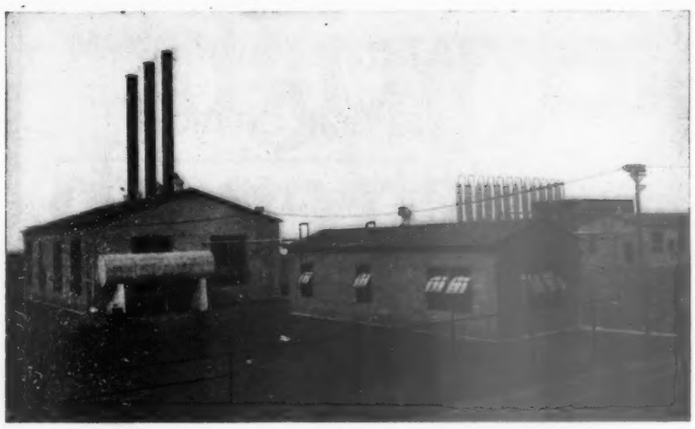

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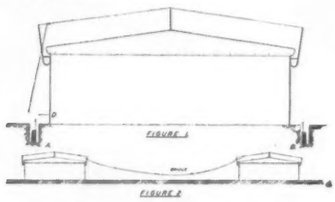
gas pipe was soldered. The net value of this resistance was approximately 0.9 ohm. The result proves definitely that the network is in good electrical contact with the tank but it does not prove that the tank is well grounded, since the gas line may run very close to the pipe line or may even touch it at some point. In the latter case the value measured would be the sum of resistances of the gas line, the pipe line, the shell of the tank and a portion of the network. It is only in case the earth is quite moist, as it was during the test, that we may expect the resistance between two points in the earth, 120 feet apart, to be as low as one ohm. Consequently it is impossible to decide definitely about the grounding of the tank from this one measurement.

To test this point further two copper "Paragon Cones," A and B, figure 1, were buried about five feet below the surface of the ground on opposite sides of the tank.

These cones are about 3 feet long, 4 inches in diameter, perforated and full of charcoal. After covering them with loose earth, several gallons of water were added according to the instructions of the manufacturers. In order to determine whether they were effectively grounded, the resistance between them was measured. Within a few minutes after they were buried the value of the resistance was 36 ohms. After standing several days this measurement was repeated and found to be 19 ohms. In the case of these two cones the stray e.m.f. was 0.12 volts.



After measuring the resistance between A and B a mechanical connection was made on the wire at C. The resistance AC was 0.5 ohms. A short copper wire was then soldered to the tank at D about 2½ feet from the ground. The measured resistance between C and D was 0.28 ohm.

The resistance between points on a radial wire on tank No. 6 and a similar connection on tank No. 7, as shown in figure 2, was measured. The net resistance was 1.1 ohms. Evidently, since this is low, the networks were in good contact with the tank shells, and the tanks were well grounded or at least connected by the low resistance of the pipe lines. Later on it was shown by a number of measurements that the pipe lines were in good contact with the ground. It is extremely unlikely that a better method of grounding could be found than is obtained naturally by the attachment of tanks to pipe lines.

A similar measurement was made between the attachment on the radial of No. 7 and a clean metallic point on No. 5, the latter a steel deck tank built on sandstone. The net resistance was .3 ohm. This corroborates the evidence obtained in the case above.

A number of resistances, as given above for Tidal tanks Nos. 6 and 7, were measured in other localities for other companies. The mechanical connections were made at points on the radial wires of the networks or soldered junctions were made on the shell of the tank. In one case several tanks had been disconnected from all pipe lines during the time that repairs were being made. Three such tanks were tested by using a soldered junction on a nearby pipe line and soldered junctions to the shells of the tanks. The stray electro-motive force in this locality was very small and practically constant being about one-twentieth of a volt. The resistence between the three tanks and the pipe line taken in order were 0.01, 0.7, 0.69 ohms. A number of other tanks were measured in this locality and in no case was the resistance between tanks more than 2 ohms.

As stated these measurements were taken during the months of May and June. The ground was wet and of course was in such condition that the resistance between two points several hundred feet apart would naturally be small. On the other hand, if the contact between the bottom of the tank and the ground in any of these cases had been large it would very easily have shown in the measurements. In very dry weather some of these measurements might give as much as 100 or 200 ohms but even this would not be a serious matter. These last measurements definitely prove that pipe line grounding is satisfactory.

It is probably of greater importance that all the tanks and pipe lines be connected through resistances which are small than that they make good contact with the earth. The distribution of charges at the time of a lightning stroke depend upon the electrical properties of the ground and this in turn upon the amount of water on the ground. If the ground is wet, most of the charge is probably on the surface. If the ground is dry most of the charge will move along a pipe line in case of a sudden discharge of the cloud.

BETTER UTILIZATION OF GAS URGED BY ENGINEER

By S. F. Shaw
Petroleum Engineer, San Antonio, Tex.

The facts brought out in the recent public hearing of the Federal Oil Conservation Board as regards conservation of oil appear to resolve themselves into the question of conservation of gas as the means for recovering a greater percentage of the oil, and yet almost no discussion took place regarding methods of conserving this gas.

The crux of the whole matter lies in utilizing the gas to better advantage. In this respect J. O. Lewis believes that there is not sufficient energy in the gas to raise all of the oil to the surface, but I have shown in an article in The Oil and Gas Journal of January 21 that it is possible for many times the energy to be present in the gas than is required to lift the oil to the surface. Mr. Lewis has stated that the general average of the pressure of the gas is about 750 pounds per square inch, and that 120 feet of gas can be dissolved in the oil at this pressure of 750 pounds. He has also stated that the general average quantity of gas consumed in raising 1 bbl. of oil to the surface is about 1,500 cubic feet. A careful examination of these figures indicates that there sufficient energy in 120 cubic feet of gas under pressure of 750 pounds per square inch to raise all of the oil to the surface from wells of average depth, as I shall presently show, and therefore the consumption of 1,500 feet of gas per barrel of oil is very inefficient. Mr. Lewis does not state the average depth of wells to which the pressure of 750 pounds applies, but it has been shown that the average pressure per foot of depth of a large number of oil fields is about 0.35 pound per square inch, and on this assumption the depth to which 750 pounds would apply would be about 2,150 feet. Suppose that instead of using 2,150 feet we make the conditions more severe and assume an average depth of 3,000 feet, and also let us assume another extreme condition, that is, that the oil in the well is as heavy as water. Under these conditions with the well shut in, the oil would rise in the well to a height of 1,738 feet, which depth would constitute the "submergence" of air lift parlance. The actual lift would then be 3,000 feet, less 1,738 feet, or 1,262 feet. For conditions where the lift is 1,262 feet and the submergence is 1,738 feet, or 750 pounds pressure, one formula $\frac{L}{254 \log_e \frac{P}{P'}}$ gives 1,258 cubic feet, as the quantity of compressed air or gas required to raise one gallon of fluid to the surface with an efficiency of 100 per cent, and for 1 bbl. of fluid the quantity required would be 1,258 × 42 or 50.52 cubic feet. In order for 120 feet of gas to raise 1 bbl. of fluid to the surface the efficiency of 50.32 ÷ 120, or 41.9 per cent, would be required. Where 1,500 feet of gas is consumed in

(Continued on Page 100)

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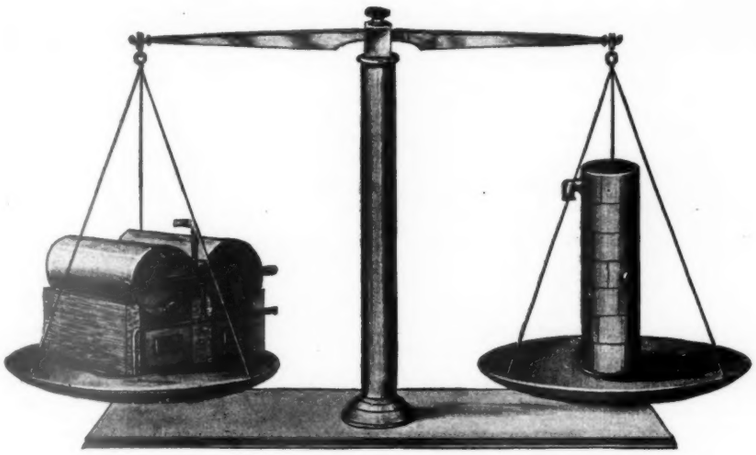

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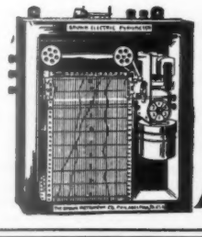

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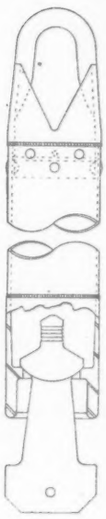

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REQUA SAYS OIL MEN SHOULD TAKE THE OFFENSIVE ON CONSERVATION

The petroleum industry should take the offensive in the matter of conservation, in the opinion of Mark L. Requa, eminent engineer and oil man of San Francisco, Calif. Conservation unquestionably means higher prices and it is a great question in his mind whether or not the servants of the government would be so eager to limit the operations of oil companies by law if such limitations would bring about higher prices to the ultimate consumer, who is at the same time the great voting public.

The increase in prices on petroleum and its products necessitated by conservation, Mr. Requa believes, would be offset by extending the availability of petroleum over a much lengthened period of years. There is no question in his mind that present prices of oil and oil products are too low and too fluctuating and in this connection he would like to see established a stabilized price for petroleum products, after the manner in which life insurance companies stabilize their premiums covering the life of a policy.

Mr. Requa was the guest of honor at a banquet given in the Hotel Mayo in Tulsa Tuesday evening, March 23, by the executive committee of the Mid-Continent Oil & Gas Association, at which C. C. Herndon, vice president of the Skelly Oil Co., acted as toastmaster.

Mr. Requa in the course of an address elaborated on the points brought out in a brief interview with him published in The Oil and Gas Journal last week.

James A. Veasey, chief counsel for the Carter Oil Co., who had preceded Mr. Requa as a speaker, asked him to state his views on the question of governmental relations toward the oil industry. Mr. Requa, in response to this, made it plain that whatever he had to say was an expression of his own views, and that he alone could be held responsible for them. He represented neither the government nor the oil industry in visiting Tulsa, and his brief stop in the city was purely personal and social, he said.

Against Government Regulation

Mr. Requa said that his connection with government during his war work activities as assistant to Herbert Hoover in the Food Administration and later as administrator of the oil and gas division of the Fuel Administration, together with a long and close study of the subject of government ownership and regulation which had carried him back a period of 2,000 years, had thoroughly convinced him that government regulation of industry was a failure. But, he said, whatever views one might hold on the question of government relations to business, experience has taught that the evolutionary period through which we are passing cannot be directed at will. He pointed to the regulation of railroads by government and the national prohibition law as two very present things that were once thought impossible. Mr. Requa's view of the situation, as expressed, was that the oil industry should awaken to the fact that government regulation of some sort may eventually become a fact, and that the industry should be prepared in advance to cooperate with government in the framing of such legislation as would be least inimical to the industry.

The oil industry, Mr. Requa said, had three important duties to perform in the way of education. It must educate the public; it must educate Congress and it must educate itself.

Navy Seeks Oil Reserves

Washington is watching and studying the petroleum situation, he said. The War and Navy Departments of the government are investigating the question of Federal reserves of oil. They are not in the least interested in foreign fields, not even those of Mexico, Venezuela or Colombia. They wish to knew where the government may quickly lay its hands on an adequate supply of oil within the United States when it urgently needs it. The Navy Department has a large force of men engaged in a survey of oil reserves, compiling data on American oil fields and their potential production, and trying to locate the position of the favorable-looking undeveloped areas. Mr. Requa repeated his statement made to The Oil and Gas Journal that the Federal Oil Conservation Board had confidence in the integrity of the oil industry and President Coolidge, he said, had already expressed himself in his statement that "the oil industry itself might be permitted to determine its own future."

On the subject of conservation, Mr. Requa drew attention to the success of Diesel locomotives, the first one of which, built jointly by the American Locomotive Co., Ingersoll-Rand Co. and the General Electric Co., now in switching service on the Central Railroad of New Jersey, with Diesel oil as fuel, was being operated at a fuel cost one-sixth that of a locomotive using coal.

It has been figured, he said, that with this type of locomotive in general use the railroads of America could effect a fuel saving of $350,000,000 a year, and he drew attention to the fact that there were 50,000,000 bbls. of Diesel oil contained in the fuel oil developed out of last year's refinery operations in this country. Mr. Requa's definition of conservation is better utilization. He expressed the opinion that one-half of our present production of oil would be sufficient for our requirements if the most efficient refining methods were in general use, and he criticized the automobile industry for its backwardness in increasing the fuel efficiency of motors. Henry Ford, he declared, was in a position to equip his cars with motors that would burn less gasoline with equally good results, but that the cost of equipping Ford plants to build the improved motors had been stated to him to be $30,000,000, which is delaying an inevitable improvement and conservative measure.

Conservation, Mr. Requa said, could not be brought about at once. It would have to be a slow process in order not to upset the equilibrium of business, but he was firmly of the belief that the oil industry should bend every effort to keep the movement under way. With tremendous demands being made upon the oil business by the steadily increasing number of motor vehicles the question of supply in the years to come must be kept in mind. He could not, he said, imagine a revolution so profound as that which would be caused by a lack of gasoline. It has become a necessity and, in a sense, a public utility.

OIL SHALE INQUIRY MAY CANCEL CLAIMS

WASHINGTON, D. C., Mar. 27.—Secretary Work has begun an inquiry into validity of oil shale claims in the West, many of which have been represented to the Interior Department as illegal.

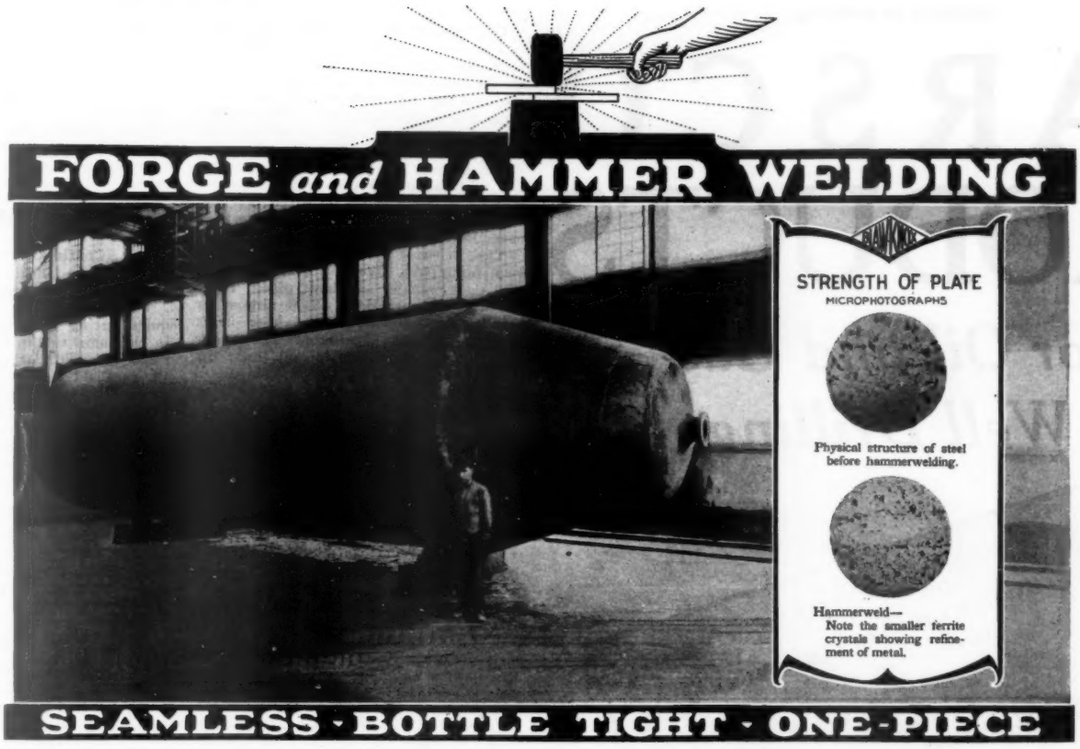
The investigation centers in Colorado, Utah and Wyoming. Should the secretary find any claims irregular, he will undertake to cancel them under a new policy by which he personally passes on the validity of such holdings.

The inquiry was begun at the request of the Navy Department, which is seeking to prevent depletion of its oil reserves and is being conducted in its present stages by field inspectors of the general land office.

Utah has nearly 3,000,000 acres classified as oil shale land, Colorado has more than 1,000,000 acres and Wyoming 460,000 acres.

SOUTHEAST TEXAS RATE

AUSTIN, Tex., Mar. 27.—A special freight rate of 16½ cents per 100 pounds on crude petroleum from Mirando City, Noleda and Bruni, to the Galveston, Houston, Beaumont and Port Arthur group ports, was ordered by the State Railroad Commission, effective on one day's publication, and to expire August 31 of this year.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PIPE MILLS ARE RUNNING HIGHER; BUYING INCREASE WELL DIVIDED

By B. E. V. Luty

PITTSBURGH, Pa., Mar. 29.—With heavier sales in the past few weeks pipe mills are running at higher rates than at the beginning of the month. One of the smaller independents has been running practically full while several large interests are doing close to 90 per cent and the average for the pipe mills as a whole is fully 85 per cent, this comparing with about 80 per cent at the beginning of March and 60 to 65 per cent in December, when operations were at their lowest ebb.

The increase in buying of late has been fairly well divided among line pipe, well material and merchant pipe. There have been several good sized orders for line pipe placed recently, these being moderately well distributed among the mills; they are chiefly for oil lines, the largest being that of the Standard Oil Co. for laying in Louisiana, and totaling about 60,000 tons.

Buying and specifying in casing, tubing and other material for wells has continued to increase and is now approximately equal to the normal average for a year, while there are chances of there being further increase as the principal drilling season really opens.

Expect Busy Summer

Demand for merchant pipe was decidedly slack all winter, reflecting the lighter consumption at that time, and mills did not get any business by jobbers replenishing stocks, as they usually have done early in the year, as the policy of jobbers now is not to carry any more stock than is needed for current business. The distribution of merchant pipe, however, is increasing now with the beginning of milder weather, permitting more outdoor work to be done.

Mills have not altered their appraisal, made three months or more ago, that this year wou'd be one of very heavy drilling, and if this is borne out, and there is a fair demand for line pipe, the pipe mills will probably have a full operation throughout the summer. There is only a little idle capacity left now.

Pipe mill prices are very well sustained at regular rates, as they have been right along except for some little irregularities on small orders for line pipe last November.

The steel market in general continues very active, and thus it is having a remarkably long run, as it was about November 1 that operations got up to a rate very close to the record high, and this high rate has been fully maintained to date, making it that the total production in five months has been record high, as when higher rates were occasionally struck in the past they did not last.

It has begun to look, however, as if mill operations would soon begin to taper off, probably in April. March, according to recent and current estimates, is likely to show a slightly higher operating rate than the average of the preceding four months, but incoming orders and specifications, taken as a whole, do not seem to be altogether sufficient to maintain the operating rate. In various lines in which mills were specified ahead they have been catching up, and in practically all lines except tin plate very prompt delivery can now be had on fresh orders or specifications.

Competition Keener

An enormous amount of sales effort is being put forth, as it takes a great deal of selling to maintain the high rate of operation, particularly so when as a rule the individual orders run small. The competition is said to be growing keener constantly, but it is claimed that price concessions are no more prevalent than formerly, being made on the particularly desirable orders. Merchant bars are one of the test cases, prices ranging from 2.00 to 2.10 cents, according to desirability of order.

Billet, slab and sheet bar contracts have been renewed for second quarter, at former prices, $35 for slabs and billets and $36 for sheet bars and small billets. Forging billets are generally quoted at the regular extra of $5 over standard rolling billets.

Pig iron continues relatively dull, but a little more second quarter inquiry is developing.

Connellsville coke is steady at $3.25 for furnace and $4.50 to $5 for foundry, being decidedly dull in the case of furnace coke.

CENTRAL WEST

(Continued from Page 50)

townships, in Hardin County, for development during the summer.

Paulding County has remained very quiet during the past few months, due in the main to the bad conditions of the roads through that section known as the Payne Field, but the drying of the roads means that the several-mile strip of territory between the Payne Field proper and the Ledford Extension across the state line in Maumee Township, Allen County, Indiana, will be given a thorough test, all the large operating companies holding acreage there.

Other Tests

Near Lima, in Bath Township, Allen County, O. T. Botkins and others' second test, 250 feet from the north line and 1,250 feet from the west line of the Hattie E. Driver farm, in the east half of Section 12, pumped 15 bbls. Trenton was topped at 1,325 feet and drilled 44 feet in.

The test drilled by Poole and others, 1,150 feet from the north line and 750 feet from the west line of the John Roth farm, mapped as the A. P. Byalt farm, in the northeast quarter of Section 18, Allen Township, Hancock County, pumped but 1 bbl., with top of sand at 1,230 feet, and drilled to a total depth of 1,490 or 260 feet in the sand. In Liberty Township, same county, the Baseline Oil Co.'s No. 10 in the southwest corner of the James Steen farm, Section 33, pumped 10 bbls. Trenton was struck at 1,200 feet and drilled 135 feet in the sand. This company is drilling its initial well on the E. Crow farm, Section 32. In Portage Township, same county, the Ohio Oil Co. is drilling No. 11 J. E. Moorehead north farm, Section 22 and No. 8 C. L. Curley, Section 27, is due for completion.

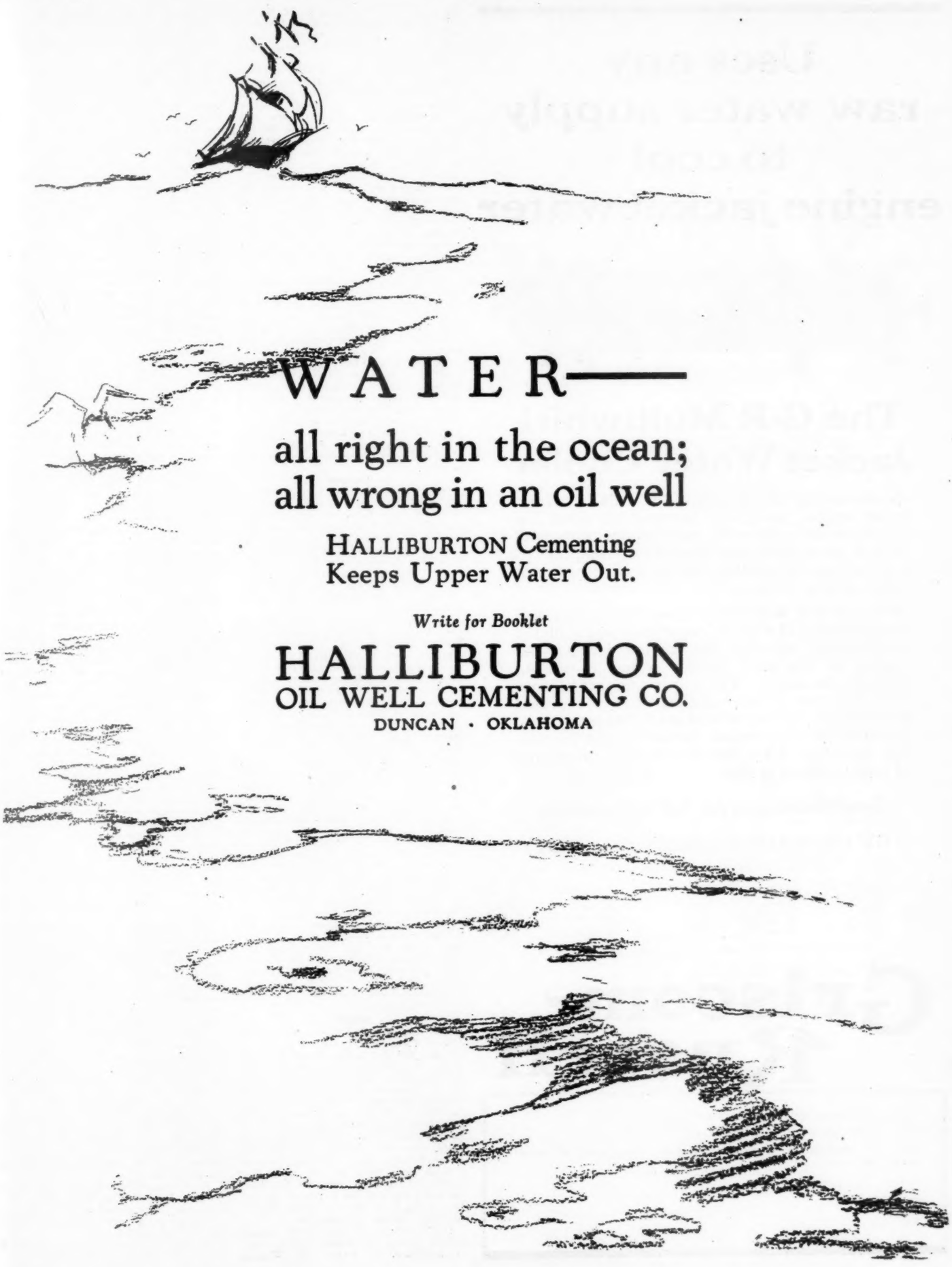
In Montgomery Township, Wood County, in the Freeport Field, Onsel Brothers abandoned Nos. 1 and 2 H. L. Byington, and Nos. 1 and 2 John Cook farm, all in Section 25. Star & Clark have started the drill at their No. 8 Alice Stauffer farm, Section 6, Eagle Township, Hancock County, and in Biglick Township, Kirk & Fitcher have a rig in for a test on the S. Seiber farm, Section 35. In Union Township, N. E. Bryson's No. 15 well, 600 feet from the south line and 200 feet from the east line of the H. A. Thompson farm, Section 26, pumped 2 bbls., with top of Trenton at 1,300 feet and drilled 100 feet in the sand.

The Ohio Oil Co. is starting its No. 17 drilling on the John H. Gochenour farm, Section 11, Moulton Township, Auglaize County.

In Sandusky County, Washington Township, the Neff Oil Co.'s No. 7 well, 1,300 feet from the north and east lines of the George W. Neff, Section 21, pumped 10 bbls. Top of sand at 1,259 feet and drilled 50 feet in the sand. The Ohio Oil Co. is drilling No. 5 Henry Kinker farm, Section 30. Harley, Henderson and Warner are drilling No. 5 C. Flack farm, Section 35, same township. In Jackson Township, Frank Haubert and others' No. 6 George Vandersall, Section 20, pumped 3 bbls. B. J. Rinebold is drilling No. 8 on his own farm, Section 30, and the Hurry Up Oil Co. is drilling No. 6 W. D. Hummell, Section 17, and abandoned No. 5 well on his farm.

Smallest Stripper

The smallest stripper drilled in many a day by Mack P. Colt, was his No. 1, 300 feet from the north line and 900



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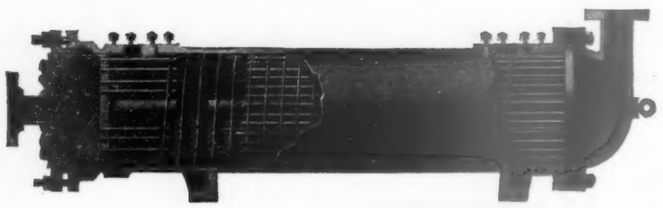

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feet from the west line of the T. E. Nelson, in the northwest quarter of Section 10, Center Township, Mercer County. Top sand was 1,145 feet, total depth 1,190 or 45 feet in.

In the Elmore Field of Harris Township, Ottawa County, the Harris Oil Co.'s No. 8 in the southeast corner of the Ed. Dietmyer farm, in the southeast quarter of Section 23, pumped 12 bbls. with sand tapped at 1,256 feet and 51 feet in the sand. The Zorn-Hornung Oil Co. abandoned No. 1 A. Barkam farm, Section 24, and is drilling No. 13 on the Edward M. Yeasting farm, Section 18. Gust Magsig and Son are drilling No. 11 Charles H. Magsig farm, Section 23 and the River Oil Co. is drilling No. 8 Ernest Bussman, Section 14. Near Oak Harbor, in Salem Township, same county, the Oak Harbor Natural Gas is drilling a test on the A. G. Milander farm, Section 5.

Schmidt and others drilled a light gas well at No. 1 in the southwest corner of the A. J. Fleece farm, in McDonel Township, Hardin County, while Sandford, Ulrich and others are starting No. 6 on the A. B. Zimmerman farm, same field.

The Neely-Cook Drilling Co. is moving a string of tools for a test southwest of Wapakonetaa, in Auglaize County, and the Rock Oil Co. is starting a well with Lynch and Fike as contractors.

It is reported that the Roundhead Oil & Gas Co. and the New York Coal Co. will do a large amount of drilling in the Hardin County Field during the coming summer.

Indiana

Only one completion is reported for the week from Indiana and that is in the old Trenton Rock area being Schulte and others' No. 1 on the G. Runyon farm, Section 16, Bear Creek Township, Jay County and reported good for 3 bbls.

In the Muncie-Albany Field of Delaware Township, Delaware County, the J. E. Houke Oil Co. and Hawkins are drilling No. 11 on the J. W. Goings farm, Section 9.

A continuation of the Allendale, Illinois, Field, to the southeast, across the Wabash River in Knox County, Indiana, does not look as interesting as it did, as reports from that area which is in Decker Township, Knox County, Indiana, are that the test of the Russell Producing Co., on the Ballentine 515-acre farm, just south of Wabash Pond, 7 miles west of the town of Decker, 2 miles south and about 3 miles east of the rich Illinois Pool in Wabash County, had reached a depth of 1,475 feet. The well passed through the Biehl sand in which much oil is found on the Illinois side of the Wabash River, but it proved dry. Then the drill went into the Jordan sand and that proved dry. Both sands passed through are lower in depth than the Allendale Field of Illinois. The contract is for a depth of 1,500 feet and whether or not the drill will be sent deeper than the contract calls for will be determined later. The well drilling on the Stecker farm, 2 miles southwest of the Ballinger test on the Indiana side of the river, and in Knox County, has reached a depth around 1,000 feet. The well on the Fox and Payne lease, just west of Claypool Hills on the Mt. Carmel-Vincennes road, is drilling. This is east of the river town of Patton and about 2 miles southwest of the drilling well on the Steckler farm.

Illinois

The only completion of note in the Illinois Field for the week was that of the Max Oil Co. in No. 6 well, 650 feet from the north line and 1,300 feet from the west line of the Holson-Dorney lease, in the northwest quarter of Section 18, Wabash Township, Wabash County, in the Stillwell Pool of the Allendale Field. This well found three pay sands at a total depth of 1,530 feet, first being the Biehl, then the Jordan and later the Holson-Dorney sands, the well showing a flush better than 85 bbls. The Mahutska Oil Co.'s fifth well, 200 feet from the south line and 600 feet from the east line of the J. F. Stillwell farm, Section 12, was a duster at 1,610 feet.

Half a mile or so south of the Adams Corner Field, and about 3 miles south of Allendale, in Section 22, Wabash Township, Wabash County, Bell and others' test in the northwest corner of the W. F. Courter farm, in the southwest quarter of the section, proved a duster at 1,660 feet.

In the Friendsville, or Bass Pool, several miles southwest of the Allendale Field, and in Friendsville Township, Wabash County, there is really more excitement than in the Stillwell Pool of the Allendale Field, owing to a rush of the drill in several wells not far removed from the 200-bbl. well recently found on the Bass farm, a mile east and a little south of Friendsville, in Section 19. Just northwest of the Bass well, Joe S. Young., Jr., and others' No. 1, on the south line of the John W. Price farm, same section, is in the sand and making a very good showing for a producer, having filled up 750 feet with fluid over night. It will be shot and cleaned out which should bring forth more crude. The same firm's No. 1, on the School Lot, is an offset to the north of the Bass well and east of the wells showing on the Price lease. This should also prove a fair producer and near pay sand. Clark Oldendorf and others' No. 1, on the Wood farm, in the same area, is down close to 600 feet. Karnes, Miller and others' No. 1 on the C. Frick lease, Section 19, and south of the Bass well is about due for completion. Miller and others are starting No. 2 on the Ezra Bass lease, same section, and a location west of the discovery well on the same farm.

Mt. Carmel Wildcat

The Mt. Carmel Community Oil Co. is drilling a wildcat on the Charles Chapman farm, Section 7, Mt. Carmel Township, same county, about 2 miles northwest of Mt. Carmel.

In Wabash Township, Wabash County, W. C. McBride has what shows for a commercial producer in his third well on the Nova Keen Marcotte farm, in the northeast quarter of Section 24 and about 1½ miles southeast of Allendale, and directly south of the discovery well in the Stillwell Pool, 2½ miles.

In Westfield Township, Clark County, in the north end of the Casey-Westfield shallow sand field, the Ohio Oil Co.'s No. 23 well, 940 feet from the south line and 425 feet from the west line of the Samuel James farm, Section 33, pumped 3 bbls. at a depth of 546 feet.

A block of more than 600 acres of land lying just west of the Sand Barrens United Brethren Church in Dennison Township, Lawrence County, has been leased by Ralph Lingenfelder of Lawrenceville, assisted by R. L. Shroyer and others with the view of testing that territory for oil and gas. The block lies 2½ miles west of St. Francisville, and is on a direct line between the Allendale and Lawrenceville oil fields. The leases call for a test to be begun by April 15, 1926. With the leasing of the latter parcels of land there would be a total of 675 acres in the block to be tested. There have been some producing wells drilled in that vicinity, but the entire block now under lease is practically virgin territory.

The leasing of the block has caused considerable excitement in that area, and if oil or gas is found in commercial quantities, there will be big doings thereabouts in that line in the very near future, there being thousands of acres of untested territory adjoining and within short distances of the city of St. Francisville. Clem Tustin, contractor, has a contract to drill the test. It is reported that a well will be drilled on the J. N. Armstorng farm, about a mile south of Sand Barrens, and that test has started spudding about a half-mile southwest of Orio.

Central Ohio

Eleven completions were reported from the Central Ohio Field proper and four others offside to the field. Of this number four were oil wells, with a combined production of 42 bbls., one dry hole and ten gas wells.

There was plenty of mud and water in the Central Ohio Field during the past week, but several days of sunshine will make a big improvement and active work should then start.

In Ashland County, the Orange Oil &

(Continued on Page 118)

POINT Nº3

Valve disc guides accurately machined with small clearance. Unequal widths prevent reversal of the disc.

POINT Nº4

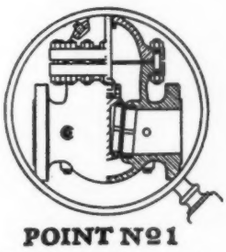
Disc free to self-center in body seats, prevents setting up of bending strains in stem.

POINT Nº5

Forged monel metal disc rings are threaded into the disc, and seat on the end. Renewable.

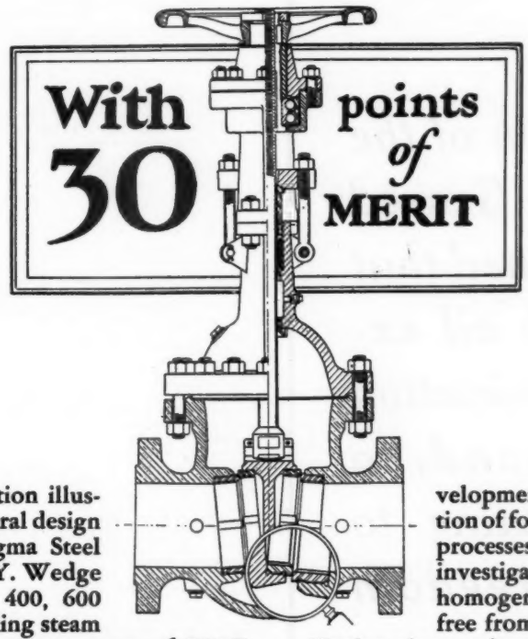
POINT Nº6

Forged monel metal seat rings are threaded into the body, and seat on the end.



POINT Nº1

The design of these valves is not an adaptation of cast iron valve design, but is made especially for casting in steel.



POINT Nº2

Circular bonnet and body neck eliminate all flat and oval surfaces, and provide cylindrical or spherical shapes of maximum strength.

THIS cross section illustrates the general design of Walworth Sigma Steel Standard O. S. & Y. Wedge Gate Valves for 400, 600 and 900 lbs. working steam pressures at total temperatures of 750°F. The design embodies all the basic features which have been definitely agreed upon for inclusion in the proposed American Standard.

The major part of the material in these valves consists of Walworth Sigma Steel which has been developed by means of an extensive X-ray investigation. The development and standardization of foundry methods and processes resulting from this investigation assure sound, homogeneous steel castings free from interior defects.

Having given active forethought to the three cardinal features—design, materials and construction—we feel justified in recommending these high pressure valves for severe service conditions.

Thirty points of merit in the design, materials and construction of these valves will be illustrated in a series of advertisements of which this is the first.

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Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air

THIS IS THE MARK OF WE *WALWORTH SIGMA STEEL*

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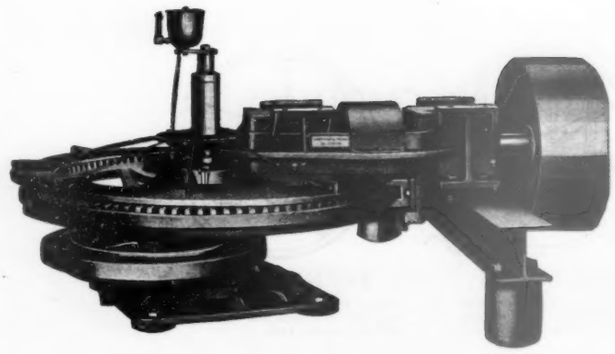

The Oiling System of the Reid Underpull Geared Power is so designed that at no time is the oil exposed to contamination by dirt and sand, a feature contributing to long life and freedom from wear.

For drive by high speed engine or electric motor an additional gear reduction unit can be supplied.

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UNIFORM ACCOUNTING COMMITTEE ISSUES APPROVED BALANCE SHEET

A complete balance sheet approved by the general committee on uniform methods of oil accounting of the American Petroleum Institute, of which M. W. Mattison, director of the division of taxation and accounting, is chairman, has been made public. This is the final installment of the final form of the balance sheet as approved at the Los Angeles meeting.

7. OPERATING RESERVES.

This classification shall include all accounts that are set up for the purpose of recording certain decreases of assets due to depletion, depreciation (including absolescence), amortization, bad debts, etc., for the purpose fo having in account classification credit balances that are deductible from the assets to which they apply.

Such reserve accounts are, in reality, divisions of the asset accounts to which they apply and, therefore, should not be shown on the liability side of the balance sheet.

Operating reserve accounts will include only credits that result from direct charges to operating expense or other profit and loss accounts.

The following sub-accounts shall be maintained:

7.0 Reserves for Depletion—Cost.
7.1 Reserves for Depletion—Appreciated Values
7.2 Reserves for Depreciation
7.3 Reserves for Amortization
7.4 Reserves for Bad Debts
7.5 Other Operating Reserves.

7. OPERATING RESERVES—7.0 Reserves for Depletion—Cost

This classification shall include reserves for sustained depletion computed on the cost of oil or gas lands and leases.

The following sub-accounts shall be maintained:

7.00 Reserves for Depletion of Oil Properties
7.01 Reserves for Depletion of Gas Properties.

7.0—Reserves for Depletion (Cost)—7.00 Reserves for Depletion of Oil Properties

To this account shall be credited the amount of sustained depletion computed on the cost of oil lands or leases.

To this account shall be charged, at the time of abandonment, sale or other disposal of such oil properties, the amount previously credited.

7.0 Reserves for Depletion (Cost)—7.01 Reserves for Depletion of Gas Properties

To this account shall be credited the amount of sustained depletion computed on the cost of gas lands or leases.

To this account shall be credited, at the time of abandonment, sale or other disposal of such gas properties, the amount previously credited.

7. OPERATING RESERVES—7.1 Reserves for Depletion (Appreciated Values)

This classification shall include the amount of sustained depletion computed on appreciation of oil or gas lands and leases.

The following sub-accounts shall be maintained:

7.10 Reserves for Depletion of Oil Properties—March 1, 1913, Valuation
7.11 Reserves for Depletion of Oil Properties—Discovery Valuation
7.12 Reserves for Depletion of Gas Properties—March 1, 1913, Valuation
7.13 Reserves for Depletion of Gas Properties—Discovery Valuation.

7.1 Reserves for Depletion (Appreciated Values)—7.10 Reserves for Depletion of Oil Properties (March 1, 1913, Valuation)

To this account shall be credited the sustained depletion computed on the excess of March 1, 1913, valuation over cost.

To this account shall be charged, at the time of abandonment, sale or other disposal of such appreciated oil properties, the amount previously credited.

7.1 Reserves for Depletion (Appreciated Values)—7.11 Reserves for Depletion of Oil Properties (Discovery Valuation)

To this account shall be credited the sustained depletion computed on the excess of discovery valuation over cost, or, in cases of properties having March 1, 1913, valuation, on the excess of discovery valuation over March 1, 1913, valuation.

To this account shall be charged, at the time of abandonment, sale or other disposal of such appreciated oil properties the amount previously credited.

7.1 Reserves for Depletion (Appreciated Values)—7.12 Reserves for Depletion of Gas Properties (March 1, 1913, Valuation)

To this account shall be credited the sustained depletion computed on the excess of March 1, 1913, valuation over cost.

To this account shall be charged at the time of abandonment, sale or other disposal of such appreciated gas properties, the amount previously credited.

7.1 Reserves for Depletion (Appreciated Values)—7.13 Reserves for Depletion of Gas Properties (Discovery Valuation)

To this account shall be credited the sustained depletion computed on the excess of discovery valuation over cost, or, in cases of properties having March 1, 1913, valuation, on the excess of discovery valuation over March 1, 1913, valuation.

To this account shall be charged, at the time of abandonment, sale or other disposal of such appreciated gas properties, the amount previously credited.

7. OPERATING RESERVES—7.2 Reserves for Depreciation (including Obsolescence)

This classification shall include reserves for depreciation and obsolescence of physical assets.

To the appropriate sub-accounts under this account shall be credited sustained depreciation and obsolescence accrued during the accounting period. Such depreciation and obsolescence shall be computed on book values of physical assets.

To the appropriate sub-accounts under this account shall be charged, at the time of abandonment, sale, or other disposal of such physical assets, the amount previously credited.

The following sub-accounts shall be maintained:

7.20 to 7.29 subdivided to conform with classifications used under Fixed (Capital) Assets.

7. OPERATING RESERVES—7.3 Reserves for Amortization

This classification shall include reserves for amortization of undeveloped leases and other fixed assets.

The following sub-accounts shall be maintained:

7.30 Reserves for Amortization—Undeveloped Leases
7.31 Reserves for Amortization—Other Fixed Assets.

7.3 Reserves for Amortization—7.30 Reserves for Amortization (Undeveloped Leases)

To this accout shall be credited the amounts received to extinguish the cost of undeveloped leaseholds ratably over their term.

To this account shall be charged, at the time of sale, abandonment, transfer to Account 4, Fixed (Capital) Assets, or other disposal, the amount previously credited.

7.3 Reserves for Amortization—7.31 Reserves for Amortization (Other Assets)

To this account shall be credited the amounts applicable to the current accounting period reserved to extinguish the cost of fixed assets subject to amortization other than undeveloped leases covered by Account 7.30.

To this account shall be charged, at the time of sale, abandonment, or other disposal of such other assets, the amount previously credited.

7. RESERVES—7.4 Reserves for Bad Debts

To this account shall be credited amounts reserved to cover estimated losses on uncollectable receivables.

To this account shall be charged receivables ascertained to be uncollectable.

7. RESERVES—7.5 Other Operating Reserves

To this account shall be credited amounts reserved to provide for extinguishment of other asset values, not provided for in Accounts 7.0 to 7.4, inclusive.

To this account shall be charged, at the time of sale or other disposal of such assets, the amount previously credited.

8. DEFERRED CREDITS

This classification shall include receipts which will be transferred to other accounts in subsequent accounting periods.

The following sub-accounts shall be maintained:

8.0 Premiums on Bonds and Notes Issued
8.1 Other Deferred Credits.

8. DEFERRED CREDITS—8.0 Premium on Bonds and Notes Issued

To this account shall be credited the excess of the cash received at the time of original issue of bonds or notes over the face value and accrued interest included in sale price.

The accrued interest so received shall be credited to Account 6.30, Accrued Interest Payable.

To this account shall be charged the proportion of such premium applicable to the current accounting period.

When bonds or notes issued at a premium are retired prior to maturity, the unamortized premium shall be charged to this account.

8. DEFERRED CREDITS—8.1 Other Deferred Credits

To this account shall be credited all deferred credits other than premiums on bonds or notes.

To this account shall be charged the proportion of deferred credits applicable to the current accounting period.

9. LONG TERM INDEBTEDNESS

This classification shall include accounts maintained to record long term indebtedness.

The following sub-accounts shall be maintained:

9.0 Bonds Payable
9.1 Loan Notes Payable
9.2 Purchase Obligations.

9. LONG TERM INDEBTEDNESS—9.0 Bonds Payable

To this account shall be credited the face value of bonds issued or assumed by the accounting company. Discounts on bonds issued shall be charged to appropriate subaccounts under Account 5.0, Deferred Charges, and premiums on bonds issued shall be credited to Account 8.0, Premiums on Bonds and Notes Issued.

To this account shall be charged the face value of bonds retired.

9. LONG TERM INDEBTEDNESS—9.1 Loan Notes Payable

To this account shall be credited the principal amount of loan notes payable, issued or assumed by the accounting company

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1½ to 3 Color
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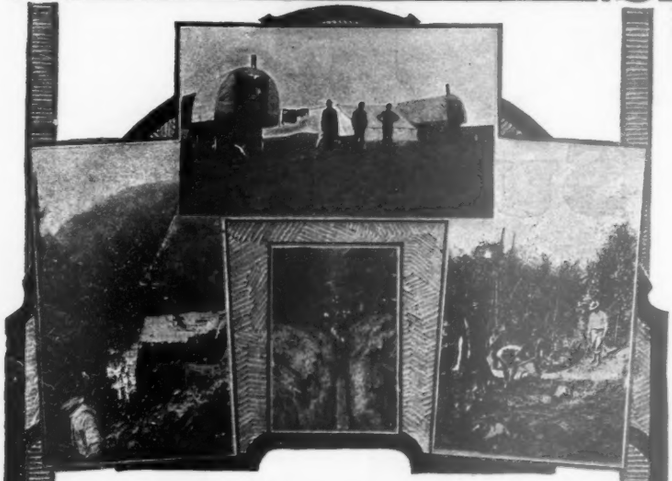
CABIN CREEK JCT., W. VA.	MUSKOGEE, OKLA.	MINNEAPOLIS	CHARLESTON, W. VA.
SMITH'S BLUFF, TEXAS		PITTSBURGH	ATLANTA, GA.
			PENSACOLA, FLA.

ENGINEERS & CONTRACTORS
IN NATURAL GAS AND OIL



Large and varied and widely distributed as are the activities of the Hope Company, each one of them receives the personal attention of some one of the Company's executive heads.

Hope Service is thus a personal service—each job representing the best that Hope executives and engineers have to offer in the way of specialized skill and experience and knowledge of the oil and gas industries.

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HE-14

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Unit Responsibility

ENGINEERS CONTRACTORS
HOPE Engineering & Supply COMPANY
DESIGNERS MANUFACTURERS
MT. VERNON, OHIO, U. S. A.

(payable later than one year from date of issuance or assumption)

Discounts on such loan notes shall be charged to Account 5.1, Discount on Other Securities, and premiums on such loan notes shall be credited to Account 8.0, Premiums on Bonds and Notes Issued.

To this account shall be charged the principal amount of loan notes retired.

9. LONG TERM INDEBTEDNESS—9.2 Purchase Obligations

To this account shall be credited the principal amount of purchase money obligations issued or assumed by the accounting company.

To this account shall be charged the principal amount of purchase money obligations retired.

10. CAPITAL AND SURPLUS

This classification shall include capital stock and surplus of the accounting company.

The following sub-accounts shall be maintained:

10.0 Preferred Capital Stock
10.1 Common Capital Stock
10.2 Scrip
10.3 Surplus.

10.0 Preferred Capital Stock

This classification shall include Capital Stock of the accounting company, having preference over Common Stocks as to dividends, liquidation of assets, or other rights.

The following sub-accounts shall be maintained:

10.00 Preferred Capital Stock Authorized
10.01 Preferred Capital Stock Unissued
10.02 Preferred Capital Stock Subscribed
10.03 Preferred Capital Stock in Treasury.

Accounts 10.00 and 10.01, as provided in the suggested uniform General Balance Sheet, are intended to be used in connection with Capital Stock having a par value.

If the Capital Stock of the accounting company has no par value, it will be unnecessary to use any of the foregoing accounts. Subscriptions to no par value Capital Stock should be charged to the subscribers and credited to Account 10.02. When subscription contracts have been fulfilled, the amount received for no-par stock issue should be charged to account 10.02 and concurrently credited to accounts style Preferred Capital Stock outstanding or Common Capital Stock Outstanding, as the case may be.

On preparing Balance Sheets for publication, the number of shares of no-par value stock authorized should be shown in memorandum form on the Balance Sheet, as well as the number of shares outstanding.

10.0 Preferred Capital Stock—10.00 Preferred Capital Stock Authorized

To this account shall be credited the amount of Preferred Stock authorized by the charter of the accounting company, and all increases thereof.

To this account shall be charged any reduction in the amount of authorized Preferred Capital Stock.

When Preferred Capital Stock is redeemed at a premium, the premium shall be charged to an appropriate profit and loss account.

10.0 Preferred Capital Stock—10.01 Preferred Capital Stock Unissued

To this account shall be charged the amount of Preferred Capital Stock authorized by the charter of the accounting company, and all increases thereof.

To this account shall be credited the amount of Preferred Capital Stock issued.

10.0 Preferred Capital Stock—10.02 Preferred Capital Stock Subscribed

To this account shall be credited the amount of Preferred Capital Stock for which subscriptions are received by the accounting company.

To this account shall be charged the amount of Preferred Capital Stock concurrently credited to Capital Stock Unissued at the time of issue of Preferred Capital Stock and which subscription contracts have been fulfilled.

10.0 Preferred Capital Stock—10.03 Preferred Capital Stock in Treasury

To this account shall be charged the amount of Preferred Capital Stock previously issued by the company when reacquired by purchase or donation.

10.1 COMMON CAPITAL STOCK

This classification shall include Capital Stock of the accounting company which has no special privileges or rights.

The following sub-accounts shall be maintained:

10.10 Common Capital Stock Authorized
10.11 Common Capital Stock Unissued
10.12 Common Capital Stock Subscribed
10.13 Common Capital Stock in Treasury.

Accounts 10.10 and 10.11, as provided in the suggested uniform General Balance Sheet, are intended to be used in the connection with Capital Stock having a par value.

If the Capital Stock of the Accounting Company has no par value, it will be unnecessary to use any of the foregoing accounts. Subscriptions to no par value Capital Stock should be charged to the subscribers and credited to Account 10.12. When subscription contracts have been fulfilled, the amount received for no-par stock issued should be charged to Account 10.12 and concurrently credited to accounts styled Preferred Capital Stock Outstanding or Common Capital Stock Outstanding, as the case may be.

On preparing Balance Sheets for publication the number of shares of no-par value stock authorized should be shown in memorandum form on the Balance Sheet, as well as the number of shares outstanding.

10.1 COMMON CAPITAL STOCK
10.10 COMMON CAPITAL STOCK AUTHORIZED

To this account shall be credited the amount of Common Capital Stock authorized by the charter of the accounting company, and all increases thereof.

To this account shall be charged any reduction in the amount of authorized Common Capital Stock.

10.1 COMMON CAPITAL STOCK
10.11 COMMON CAPITAL STOCK UNISSUED

To this account shall be charged the amount of Common Capital Stock authorized by the charter of the accounting company, and all increases thereof.

To this account shall be credited the amount of Common Capital Stock issued.

10.1 COMMON CAPITAL STOCK
10.12 COMMON CAPITAL STOCK SUBSCRIBED

To this account shall be credited the amount of Common Capital Stock for which subscriptions are received by the accounting company.

To this account shall be charged the amount of Common Capital Stock concurrently credited to Capital Stock Unissued at the time of issue of Common Capital Stock on which subscription contracts have been fulfilled.

10.1 COMMON CAPITAL STOCK
10.13 COMMON CAPITAL STOCK IN TREASURY

To this account shall be charged the amount of Common Capital Stock previously issued by the company when reacquired by purchase of donation.

To this account shall be credited the amount of Common Capital Stock previously reacquired by purchase or donation, when sold, cancelled, or otherwise disposed of.

10. CAPITAL AND SURPLUS
10.2 SCRIP

This classification shall include the amount of scrip certificates or warrants issued by the accounting company, evidencing ownership of fractions of shares of Capital Stock, or conveying other rights or privileges specified in such certificates.

Appropriate sub-accounts shall be maintained to which shall be credited the amounts realized from the sale or issuance of such scrip certificates or warrants, and to which shall be charged, at the time of retirement, exchange for Capital Stock, or other disposal, the amounts previously credited.

10. CAPITAL AND SURPLUS
10.3 SURPLUS

This classification shall include surplus, surplus from appreciation on account of revaluation as of March 1, 1913, or at date of discovery or other appraisal, appropriations of surplus, and earned surplus unappropriated.

The following sub-accounts shall be maintained.

10.30 Capital Surplus Paid In
10.31 Surplus from Appreciation—March 1, 1913
  10.310 Total Appreciation
  10.311 Realized Appropriation
10.32 Surplus from Appreciation—Discovery
  10.320 Total Appreciation
  10.321 Realibed Appreciation
10.33 Surplus from Appraisal
  10.330 Total Appreciation
  10.331 Realized Appreciation
10.34 Earned Surplus (Appropriated)
10.35 Earned Surplus (Unappropriated)

In consolidated balance sheets, an account will cometimes be necessary to cover the equity of minority stockholders in subsidiary companies. This equity is ascertained by determining the proportion of capital stock held by minority interests in subsidiary companies, and setting aside in the process of consolidation, such proportion of the book value as inures to such minority interests.

10.3 SURPLUS
10.30 CAPITAL SURPLUS PAID IN

To this account shall be credited premium received on the sale of Capital Stock of the accounting company, payments on stock subscriptions forfeited, assessments on Capital Stock, excess over par value of tangible assets received for Capital Stock, donations to the corporation by stockholders, or profits on sales of treasury stock.

To this account shall be charged discount on the sales of the Capital Stock of the accounting company, and dividends declared after the exhaustion of other surplus accounts.

10.3 SURPLUS
10.31 SURPLUS FROM APPRECIATION—MARCH 1, 1913

This classification shall include surplus arising from appreciation of oil and gas lands and leases as of March 1, 1913.

The following sub-accounts shall be maintained:

10.310 Total Appreciation
10.311 Realized Appreciation

When preparing balance sheets, the realized Appreciation carried in Account 10.311 should be shown as a deduction from the total appreciation carried in Account 10.310, the difference being Unrealized Surplus from Appreciation—March 1, 1913.

10.31 SURPLUS FROM APPRECIATION—MARCH 1, 1913
10.310 TOTAL APPRECIATION

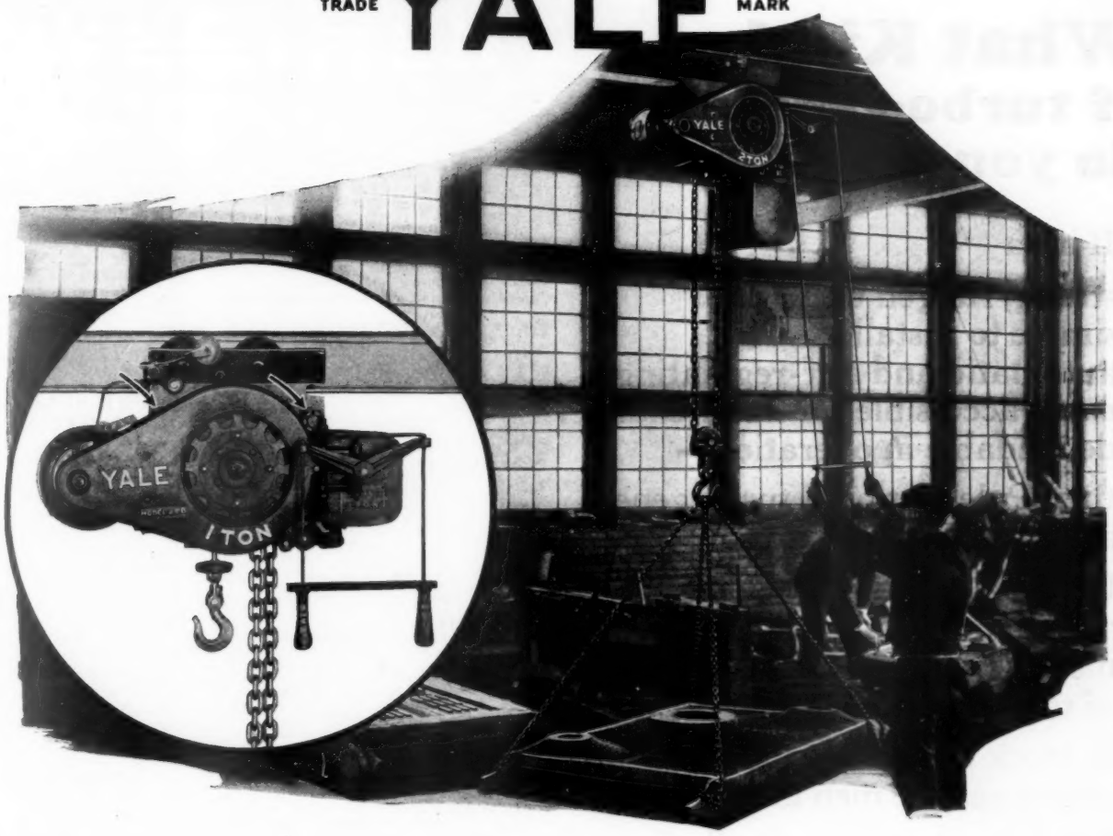
To this account shall be credited the excess of the value of oil and gas lands and leases as of March 1, 1913 over book value.

To this account shall be charged amounts disallowed after conference with the Treasury Department.

10.31 SURPLUS FROM APPRECIATION—MARCH 1, 1913
10.311 REALIZED APPRECIATION

To this account shall be credited and con-

TRADE **YALE** MARK



Where accuracy is paramount!

This 2-ton Yale Ball Bearing Electric Chain Hoist, Model 20B, with its slow speed, 3-phase A.C. motor proves an ideal piece of handling equipment for heavy foundry service—or any service requiring careful, accurate work.

Its smooth, positive action and sensitive control give the operator special facility in the careful placing of heavy loads such as the foundry cope, or its removal, without disturbing the intricate sand molds.

All working parts are fully enclosed and protected from dust and dirt, yet easily accessible for inspection at any time.

The Yale Model 20B Electric Hoist, compact and readily adjustable for headroom, lift and I-Beam flange, has the Yale ball-bearing load sheave for efficiency, and steel plate trolley with hardened and ground steel roller bearings for easy travel.

The Yale Model 20B is the latest development in electric hoisting equipment. Write for the Yale Bulletins.

The Yale & Towne Manufacturing Co.
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YALE
Chain Blocks, Electric Hoists } For Lifts
I-Beam Trolleys, Industrial Trucks } For Shifts

Yale Material Handling Equipment includes Ball Bearing Spur-Geared Chain Blocks, Screw-Geared and Differential Chain Blocks, Ball Bearing Electric Hoists, I-Beam Trolleys, Overhead Crane Equipment, and Electric Industrial Trucks, Tractors and Trailers.

Factory Locking Equipment—To acquire locking control, security and convenience throughout the factory, use Yale Master Keyed Locks.

YALE **Hoisting and Conveying Systems**

What Kind of turbo-generator do you want?

If it's a

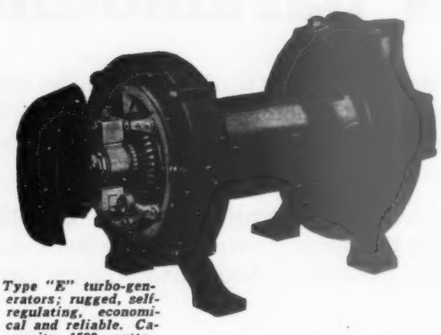
**strong, rugged unit,
simple to install,
automatic and self-regulating,
easily accessible for maintenance,
dependable in operation—**

then Pyle-National turbo-generators are the units to use.

Used by hundreds of operators, and used as equipment for locomotive lighting by more than 90% of the railroads.

In stock for quick delivery. Competent service men in the field.

Write for descriptive bulletins.



Type "E" turbo-generators; rugged, self-regulating, economical and reliable. Capacity 1500 watts.

The Pyle-National Co.

General Offices and Works:
1334-1358 North Kostner Ave., Chicago, Ill., U. S. A.

Canadian Agents:
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Export Department:
International Railway Supply Company
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PYLE-O-LYTE THE PYLE-NATIONAL COMPANY CHICAGO

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O&GJ 4-1E-RTG

currently charged to Account 10.35 Earned Surplus (Unappropriated), the difference between depletion computed on March 1, 1913 valuation, and depletion computed on cost.

To this account shall be charged dividends declared after the entire amount of earned surplus has been distributed in dividends.

10.3 SURPLUS

10.32 SURPLUS FROM APPRECIATION—DISCOVERY

This classification shall include surplus arising from appreciation of oil and gas lands and leases on account of discoveries.

The following sub-accounts shall be maintained:

10.320 Total Appreciation
10.321 Realized Appreciation

When preparing balance sheets, the realized appreciation carried in Account 10.321 should be shown as a deduction from the total appreciation carried in Account 10.320, the difference being Unrealized Surplus from Appreciation—Discovery.

10.32 SURPLUS FROM APPRECIATION—DISCOVERY

10.320 TOTAL APPRECIATION

To this account shall be credited the excess of discovery valuation of oil and gas lands and leases over cost, or, in cases of properties having March 1, 1913 valuation, the excess of discovery valuation over March 1, 1913 valuation.

To this account shall be charged amounts disallowed after conference with the Treasury Department.

10.32 SURPLUS FROM APPRECIATION—DISCOVERY

10.321 REALIZED APPRECIATION

To this account shall be credited and concurrently charged the Account 10.35 Earned Surplus (Unappropriated), the difference between depletion computed on cost or March 1, 1913 valuation.

To this account shall be charged dividends declared after entire amount of earned surplus has been distributed in dividends.

10.3 SURPLUS

10.33 SURPLUS FROM APPRAISAL

To this account shall be credited surplus arising from revaluations of plant, property and equipment, except such surplus as may be included in Account 10.31 Surplus from Appreciation—March 1, 1913, or Account 10.32 Surplus from Appreciation—Discovery.

To this account shall be charged the amount of depreciation computed on the excess of appraised values over cost and dividends declared after entire amount of earned surplus has been distributed as dividends.

10.3 SURPLUS

10.34 EARNED SURPLUS (APPROPRIATED)

To this account shall be credited amounts specifically set aside from earned surplus by appropriate action of the Board of Directors, such as reserves for new construction, sinking funds, insurance, employes' pensions, and other contingencies, whether or not actual funds are specifically set aside in cash or other assets.

To this account shall be charged such amounts as are returned to Account 10.35 Earned Surplus (Unappropriated) by action of the Board of Directors.

Appropriate sub-accounts shall be maintained to meet the particular requirements of each accounting company.

10.3 SURPLUS

10.35 EARNED SURPLUS (UNAPPROPRIATED)

To this account shall be transferred the net balance of the current profit and loss account.

To this account shall be credited amounts previously transferred to Account 10.34 Earned Surplus (Appropriated,) and subsequently returned to Account 10.35 Earned Surplus (Unappropriated).

To this account shall be charged the amount of dividends declared, and specific appropriations of surplus made by the directors of the accounting company.

To this account shall be charged or credited adjustments made during the current accounting period, which apply to prior accounting periods.

SCHOOL LAND LEASES

Commissioners of the Land Office of the State of Oklahoma will receive sealed bids until 2 o'clock P. M., on March 30, for oil and gas leases on certain of its School and State Lands as follows:

Lincoln County

No. 1, NE, Section 16-15n-4e, 160 acres; No. 2, SE, Section 16-15n-4e, 160 acres; and No. 3 SW, Section 16-15n-4e, 160 acres.

Pottawatomie County

NW, Section 16-8n-5e, 160 acres; and SW, Section 16-8n-5e, 160 acres.

Stephens County

NE, Section 16-2s-8w, 160 acres; and SW, Section 16-2s-8w, 160 acres.

ALBERT GEORGE COX DIES

CHATHAM, Ont., Mar. 27.—Albert George Cox, a well-known driller, passed away at Port Rowan, Ont., recently, in his fifty-third year. He drilled in a number of foreign fields, including Persia and South America.

PRAIRIE PIPE LINE IN COLEMAN COUNTY

COLEMAN, Tex., Mar. 27.—The Prairie Pipe Line Co. has secured acreage for a pumping plant in the Dibrell oil field and work has started. A pipe line will be run into the field from Pioneer 9 miles of 6-inch pipe and 8 miles of 4-inch pipe. A pumping plant will be erected on the lease, a concrete dam built across Ranch Creek and a number of tenant houses built for employes.

There is much activity in the Dibrell Field. Four derricks are up near No. 1 Gwinnup, and contracts have been warded for 3 more. On adjoining property two have been erected and others in contemplation. The coming of the pipe line has increased interest in the field. No. 1 Gwinnup came in several weeks ago, producing 65 to 70 bbls. per day. Now the gauge shows 110 bbls. per day.

COURT RULES ON OIL IN PAYING QUANTITIES

OKLAHOMA CITY, Okla., Mar. 27.—The Oklahoma Supreme Court has decided what constitutes oil in "paying quantities," the decision probably being the first on the subject rendered in the state. In affirming a district court opinion favoring the Gypsy Oil Co. in a suit involving a 160-acre lease in Carter County brought by Stanley Marsh of Ardmore, the court held that:

"Oil in paying quantities means in paying quantities to the lessee. If the profit, even small, is over operating expenses, it (the well) produces in paying quantities although it may never repay its cost of operation and as a whole it may prove unprofitable."

FUEL OIL TAX VOID

CHATHAM, Ont., Mar. 27.—The fuel oil tax of one-half cent a gallon, authorized by the British Columbia provincial legislature in 1923, and estimated to return an annual revenue of $400,000 has been declared illegal by Justice Morrison in the Supreme Court at Vancouver, on the ground that the tax is indirect and ultra vires of the provincial legislature.

"Following an old maxim of taxation, 'Wherever you see an object, tax it,' the Legislature," stated Justice Morrison, "detected a new source of revenue." The added that the Government might have been actuated by the laudable motive of protecting the provincial fuel supply from competition of foreign fuel oil, but he held that the legislature did not possess the power to create a protective tariff, and the tax savored of a customs duty.

The Attorney-General of British Columbia has announced he would appeal an adverse decision to the Privy Council; so that Justice Morrison's decision may still be upset.

Although the gasoline tax of 3 cents a gallon also passed in 1923 by the British Columbia legislature was not directly involved in the fuel oil tax case, the statute is analogous, and the reasoning applicable to the one will affect the others.

BIGGEST MOTOR SHIPS

It is reported in Belfast that an order for a passenger liner which will eclipse the Majestic in size will be placed with Harland & Wolff's Belfast shipyard by the White Star Steamship Co. The British Wireless Press Service carried the additional information that the new liner will be nearly 60,000 tons register and will be motor driven.

E. V. A. KENNEDY DIES

CHATHAM, Ont., Mar. 27.—E. V. A. Kennedy, secretary of Imperial Oil, Ltd., of Toronto, died this week in Rochester, Minn. Mr. Kennedy was born in the United States, but has been associated with Imperial Oil, Ltd., for more than 20 years, coming to the office at Toronto from the Sarnia refinery three years ago.

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s "OILWELL"
Clutch in action

UPPLY CO.

EQUIPMENT

BRANCH STORES IN ALL OIL FIELDS

"OILWELL"
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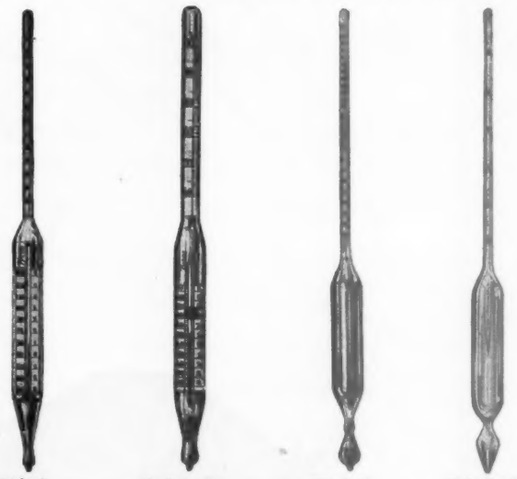
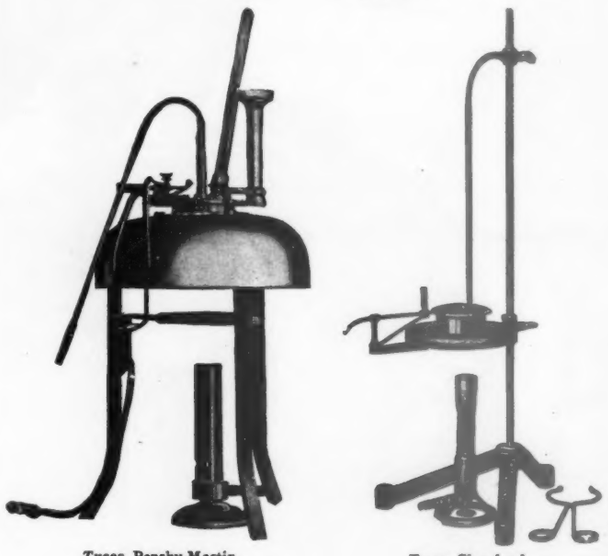


14 inch Thermo-Hydrometer fractionally graduated scale

Pocket size Thermo-Hydrometer for testing small samples

16 inch Thermo-Hydrometer temperature scale in top of stem for opaque oils

13 inch plain Hydrometer fractionally graduated scale



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SEMI-ANNUAL GASOLINE SURVEY; QUALITY SLIGHTLY IMPROVED

By E. C. Lane[1], H. M. Thorne[2], and John Devine[2]

Although motor gasoline marketed in the United States in January of this year was, on the average, slightly more volatile than that sold in January, 1925, the improvement in quality is too small to be of importance. In other words, there is no evidence that any radical change in the quality of gasoline is being made at the present time.

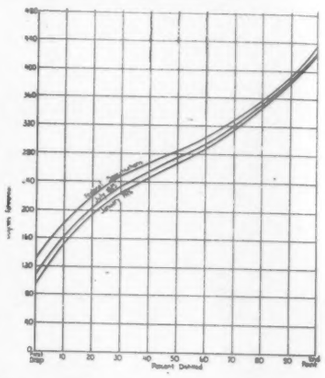
During the past six years the Bureau of Mines has made semiannual surveys of the gasoline marketed in the United States, the survey just completed being the thirteenth in the series. The cities in which samples have been collected have been chosen as representative of the more important marketing territories, as it is obviously impracticable to obtain a sample of every gasoline sold in the entire country.

The tendency toward uniformity in gasoline which has been noted in the past several years has apparently reached its maximum. This is shown in Table 1. In computing this table, the 10 per cent of gasoline with the lowest "end points" and the 10 per cent with the highest "end points" in each survey were selected, and the average "end point" computed for each group. The decrease in the differences between these figures has been taken as an index of the trend toward uniformity.

There is apparently a distinct difference between "winter" and "summer" gasoline, the gasoline marketed during the winter being more volatile than that sold during the summer. This difference is shown in Table 2, which gives winter and summer averages for the past six years. This table also shows the increase in volatility in the gasoline marketed this winter as compared with the gasoline marketed last winter.

An increase in volatility is also shown for the average gasolines from Pittsburgh, Pa., Chicago, Ill., New Orleans, La., St. Louis, Mo., Denver, Colo., and Laramie, Wyo. The averages for New York, N. Y., and San Francisco, Calif., show little change, while those for Washington, D. C., and Bartlesville, Okla., are less volatile than a year ago.

Distillation curves representing the present Federal specification for U. S. Motor gasoline, the average of all samples analyzed in July, 1925, also the average of all samples in the present survey are given in Figure 1.



The samples were tested in accordance with methods given in Bureau of Mines Technical Paper 323-A[3], and in the case of samples from Laramie, Wyo., and Denver, Colo., the resulting figures were corrected for altitude. All temperatures are shown in degrees Fahrenheit.

[1]Assistant Petroleum Chemist, Bureau of Mines.
[2]Junior Chemists, Bureau of Mines.

[3]Federal Specifications Board, Standard Specification No. 3-C, United States Government specification for lubricants and liquid fuels and methods for testing, Technical Paper 323-A, Bureau of Mines.

TABLE 1
Shows Range of End Points in Each Gasoline Survey

	April 1917	Jan. 1919	Jul. 1920	Jan. 1921	Jul. 1921	Jan. 1922	Jul. 1922	Jan. 1923	Jul. 1923	Jan. 1924	Jul. 1924	Jan. 1925	Jul. 1925	Jan. 1926
Maximum 10%	449	472	432	502	467	473	461	461	451	471	460	457	453	458	450
Minimum 10%	334	363	377	406	382	398	397	401	397	400	392	396	401	399	390
Difference....	115	109	105	96	85	75	64	60	54	71	68	61	51	59	60

TABLE 2
Average Results of Motor Gasoline Surveys

Survey—	Specific Gravity	A.P.I. Degrees	First Drop	20%	50%	90%	End Point	Aver. B. P.	Per Cent Recov'd
WINTER									
January, 1920	0.748	57.7	119	200	259	369	427	264	96.6
January, 1921	0.744	58.7	113	197	261	377	431	264	95.9
January, 1922	0.745	58.4	102	200	267	377	430	268	96.0
January, 1923	0.744	58.8	107	201	267	375	427	268	96.0
January, 1924	0.748	57.7	96	196	267	383	431	268	96.2
January, 1925	0.746	58.2	95	195	266	382	425	267	96.2
January, 1926	0.747	57.9	93	189	264	380	423	264	96.3
Average	0.746	58.2	104	197	264	378	428	266	96.2
SUMMER									
July, 1920	0.749	57.4	130	208	268	388	446	277	96.7
July, 1921	0.747	57.9	125	202	262	377	433	270	96.7
July, 1922	0.752	56.8	121	208	270	375	429	273	96.8
July, 1923	0.751	56.9	126	206	269	382	436	273	96.8
July, 1924	0.751	56.9	107	200	271	390	431	273	96.0
July, 1925	0.754	56.2	108	204	275	387	427	275	96.2
Average	0.751	56.9	119	205	269	383	434	274	96.5

TABLE 3
Average Results of Motor Gasoline Survey, January, 1926

District—	Specific Gravity	A.P.I. Degrees	First Drop	20%	50%	90%	End Point	Aver. B. P.	Per Cent Recov'd
New York City	.747	57.9	91	196	280	386	426	273	96.5
Washington	.763	54.0	101	194	261	381	426	266	96.8
Pittsburgh	.745	58.4	98	182	247	371	425	255	96.1
Chicago	.750	57.2	89	190	271	393	432	271	96.3
New Orleans	.750	57.2	99	201	276	383	430	273	97.0
St. Louis	.744	58.7	91	192	266	389	426	269	96.3
Bartlesville	.738	60.2	92	180	278	403	433	271	94.9
Denver	.741	59.5	84	181	252	363	406	252	96.0
Laramie	.746	58.2	81	183	266	367	405	254	96.8
San Francisco	.750	57.2	100	190	253	368	418	258	96.5
Average	.747	57.9	93	189	264	380	423	264	96.3

TABLE 4
Motor Gasoline Survey, January, 1926
Distillation Data for Samples From Different Cities, With Average Figures From Each City

Sample Number	Specific Gravity	A.P.I. Degrees	First Drop	20%	50%	90%	End Point	Aver. B. P.	Per Cent Recov'd
NEW YORK									
1	.745	58.4	86	194	291	401	428	270	95.5
2	.761	56.9	97	203	268	364	410	265	96.5
3	.743	58.9	82	185	286	397	428	274	95.5
4	.742	59.2	82	180	277	397	428	269	95.5
5	.749	57.4	82	181	253	385	433	259	97.0
6	.750	57.2	91	203	289	388	423	278	97.0
7	.741	59.5	90	190	270	383	428	266	95.5
8	.746	58.2	86	194	288	394	432	276	96.5
9	.750	57.2	84	199	288	387	421	276	97.0
10	.748	57.7	100	205	270	367	426	268	97.0
11	.751	56.9	104	217	306	401	433	283	97.0
12	.749	57.4	106	208	273	366	424	269	97.5
Average	.747	57.9	91	196	280	386	426	273	96.5
WASHINGTON									
13	.769	52.5	102	203	271	390	428	276	97.0
14	.808	43.6	140	180	207	374	421	247	97.0
15	.739	60.0	86	190	266	376	433	264	97.0
16	.740	59.7	100	201	280	383	432	266	97.0
17	.802	44.9	113	185	219	363	423	248	98.0

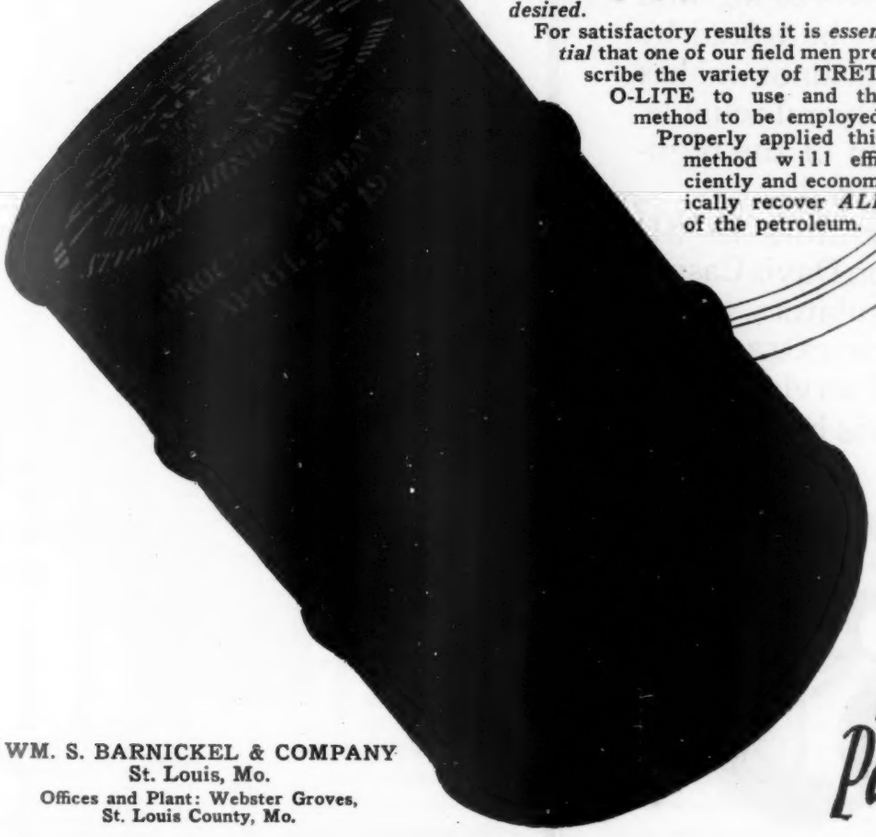
for treating

Any Quantity of Emulsion on the Lease—

TRET-O-LITE is simply a chemical for treating "cut oil" and "tank bottoms," on the lease.

The tanks and pipe already on the lease are utilized, and can be arranged for treating *any quantity of emulsion desired.*

For satisfactory results it is *essential* that one of our field men prescribe the variety of TRET-O-LITE to use and the method to be employed. Properly applied this method will efficiently and economically recover *ALL* of the petroleum.



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WM. S. BARNICKEL & COMPANY
St. Louis, Mo.
Offices and Plant: Webster Groves, St. Louis County, Mo.

Tret-O-lite

CARRY a different vacuum on every well, if you like, and with Davis Casing Head Gas Regulators the control will be smooth, steady, and reliable, no matter what the conditions. Simplicity of design and sturdy construction are the reasons. Davis Regulators have only one internal movable part, a balanced beveled seated disc with graduated port openings, connected to a flexible diaphragm. The external counterweight makes the action visible, and the regulator can be tested by hand. The oil dashpot makes regulation smooth and reliable, and the operation of the regulator unusually steady.

Experienced operators in all the fields rely upon Davis Casing Head Gas Regulators. They have proved their extra worth through years of service.

Send for the Davis bulletins.

In addition to this Casing Head Gas Regulator, there is also the famous Davis Supersensitive Relief Valve, Float Box with control valve and pressure regulator.

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Valve Makers for Over Fifty Years

DAVIS VALVE
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SPECIALTIES

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18	.767	53.0	108	217	284	383	433	281	97.5
19	.747	57.9	93	198	284	396	441	279	97.0
20	.754	56.2	99	165	203	320	385	221	97.0
21	.738	60.2	93	196	280	392	430	274	96.0
22	.763	54.0	100	216	284	387	433	281	97.5
23	.795	46.5	129	190	241	394	450	268	97.0
24	.764	53.7	93	194	275	390	433	272	96.5
25	.756	55.7	93	208	289	396	430	281	96.0
26	.748	57.7	90	190	280	385	419	271	96.0
27	.782	49.5	86	176	219	374	410	246	97.0
28	.754	56.2	90	199	282	399	432	277	96.5
29	.775	51.1	111	187	255	383	428	265	97.0
30	.740	59.7	91	189	275	381	419	267	96.0
Average	.763	54.0	101	194	261	381	426	266	96.8
PITTSBURGH									
31	.761	54.4	90	207	284	397	426	280	97.0
32	.719	65.3	99	181	221	318	388	230	96.0
33	.742	59.2	93	171	226	356	405	240	96.0
34	.762	49.5	118	186	205	349	403	234	96.5
35	.731	62.1	91	183	248	370	414	253	96.5
36	.735	61.0	93	185	266	387	423	256	95.0
37	.718	65.6	84	154	239	394	432	249	95.0
38	.805	44.3	129	185	212	376	421	250	97.0
39	.768	52.7	104	210	275	392	428	273	97.0
40	.736	60.8	90	189	264	381	430	264	96.5
41	.718	65.6	82	149	235	378	424	242	95.0
42	.744	58.7	88	185	261	390	435	264	96.5
43	.739	60.0	86	192	270	385	432	268	96.0
44	.797	46.0	138	183	216	360	424	249	97.5
45	.730	62.3	91	185	284	435	491	285	95.0
46	.748	57.7	91	167	237	401	459	258	96.0
47	.731	62.1	111	190	266	356	405	261	97.0
48	.728	62.9	86	183	239	352	403	245	95.5
Average	.745	58.4	98	182	247	371	425	255	96.1
CHICAGO									
49	.733	61.5	91	190	257	352	403	254	96.5
50	.743	58.9	88	185	270	399	432	269	96.0
51	.745	58.4	84	205	313	412	441	287	95.0
52	.774	51.3	90	172	219	390	432	251	96.5
53	.752	56.7	93	185	271	399	432	271	96.0
54	.744	58.7	90	201	271	387	450	272	96.5
55	.747	57.9	91	199	284	399	430	279	96.5
56	.755	55.9	91	190	279	397	430	274	96.5
57	.754	56.2	86	167	298	406	435	278	96.0
58	.746	58.2	86	178	286	406	435	277	96.5
59	.750	57.2	90	198	295	410	441	284	96.0
60	.767	53.0	91	180	239	392	430	258	96.5
61	.745	58.4	97	203	275	390	435	276	97.0
62	.768	52.7	88	180	237	397	435	261	96.5
63	.743	58.9	81	190	279	401	432	274	95.0
64	.742	59.2	86	198	271	390	433	271	96.5
65	.742	59.2	97	216	270	361	419	268	97.0
Average	.750	57.2	89	190	271	393	432	271	96.3
NEW ORLEANS									
66	.741	59.5	95	199	270	388	433	271	97.0
67	.755	55.9	113	210	273	374	424	265	97.5
68	.740	59.7	82	183	280	396	435	271	96.0
69	.748	57.7	88	187	266	383	428	264	97.0
70	.742	59.2	95	203	275	399	442	277	97.0
71	.749	57.4	86	199	286	387	424	276	96.5
72	.762	54.2	118	219	282	378	426	281	97.5
73	.756	55.7	122	214	280	347	437	282	97.5
74	.762	54.2	102	216	288	388	439	283	97.5
75	.756	55.7	102	198	252	352	414	247	97.5
76	.744	58.7	91	190	280	383	428	271	96.0
77	.746	58.2	91	198	282	385	428	274	97.0
Average	.750	57.2	99	201	276	383	430	272	97.0
ST. LOUIS									
78	.747	57.9	91	194	292	390	426	273	96.5
79	.735	61.0	90	198	257	349	399	254	97.0
80	.747	57.9	90	194	282	401	433	277	96.0
81	.742	59.2	88	190	271	388	433	261	97.0
82	.774	51.3	91	180	226	390	430	253	96.5
83	.741	59.5	104	199	261	376	426	267	97.5
84	.721	64.8	90	165	219	322	378	226	96.0
85	.747	57.9	99	199	273	396	428	276	97.0
86	.746	58.2	91	196	282	388	423	275	96.5
87	.749	57.4	91	201	286	399	433	280	97.0
88	.743	58.9	86	189	282	396	426	275	96.0
89	.743	58.9	84	205	293	397	430	280	95.5
90	.748	57.7	84	199	288	408	437	281	96.5
91	.744	58.7	82	189	289	410	439	280	96.0
92	.767	53.0	86	162	207	401	426	244	95.0
93	.747	57.9	90	196	270	390	428	270	97.0
94	.741	59.5	90	196	275	394	426	272	95.0
95	.743	58.9	95	199	264	365	430	264	97.5
96	.743	58.9	91	192	280	396	426	273	96.0
97	.741	59.5	95	181	270	390	424	268	96.0
98	.750	57.2	102	199	288	396	421	280	96.5
99	.744	58.7	91	192	277	399	433	275	95.5
100	.744	58.7	86	194	288	403	437	279	95.5
Average	.744	58.7	91	192	266	389	426	269	96.3
BARTLESVILLE, OKLA.									
101	.745	58.4	113	207	266	369	433	269	97.0
102	.739	60.0	113	212	266	356	397	266	97.0
103	.746	58.2	104	205	284	394	432	280	96.0
104	.721	64.8	84	162	232	406	415	250	92.0
105	.708	68.4	81	149	219	....	419	222	90.0
106	.742	59.2	90	183	293	406	437	280	96.0
107	.720	65.0	91	149	235	410	433	252	93.0
108	.735	61.0	75	142	265	466	468	302	91.0
109	.738	60.2	82	183	268	392	423	265	95.0
110	.743	58.9	88	183	270	390	424	266	96.5
111	.744	58.7	93	194	284	410	435	281	96.5
112	.747	57.9	90	192	266	392	426	267	96.0
113	.750	57.2	93	203	286	403	432	282	97.0
114	.750	57.2	95	154	354	451	477	301	95.0
Average	.738	60.2	92	180	278	403	433	271	94.9
DENVER									
115	.719	65.3	80	148	200	335	404	217	97.0
116	.754	56.2	83	195	283	395	425	275	95.5
117	.755	55.9	88	197	280	393	427	274	96.0
118	.741	59.5	83	188	269	383	418	264	95.0
119	.751	56.9	91	193	268	381	411	266	96.5
120	.725	63.7	83	166	209	295	350	213	96.0
Average	.741	59.5	84	181	252	363	406	252	96.0
LARAMIE									
121	.726	63.4	81	161	211	307	361	216	97.5
122	.751	56.9	83	191	265	370	406	261	97.0
123	.751	56.9	83	191	269	374	406	263	97.0
124	.757	55.4	79	191	276	387	422	269	96.5
125	.746	58.2	77	176	255	378	414	254	96.0
126	.747	57.9	80	185	262	385	420	261	96.5
Average	.746	58.2	81	183	256	367	405	254	96.8
SAN FRANCISCO									
127	.751	56.9	102	201	252	342	396	253	97.0
128	.758	55.2	106	196	250	365	423	258	97.0
129	.748	57.7	97	185	241	361	417	251	96.0
130	.740	59.7	91	172	244	379	430	253	95.5
131	.744	58.7	93	180	259	379	424	259	96.0
132	.744	58.7	93	185	261	385	430	262	96.0
133	.756	55.7	97	199	266	381	423	267	96.5
134	.749	57.4	100	190	248	369	417	255	96.5
135	.753	56.4	100	198	257	372	419	262	97.0
136	.758	55.2	104	199	259	360	423	258	97.0
137	.752	56.7	108	203	248	340	385	252	97.0
138	.750	57.2	106	194	257	378	433	264	97.0
Average	.750	57.2	100	190	253	368	418	258	96.5

TABLE 5

Comparison of January, 1925, and January, 1926, Surveys

District—	Date	First Drop	20%	50%	90%	End Point	Aver. B. P.
New York:	Jan., 1925	93	202	277	383	428	273

Sivyer Castings can be forged and welded

To the left is a latch, and to the right a jaw, casting for an oil well tool and pipe tong. Both of these important parts are cast in Sivyer Electric Steel.

SIVYER (S) CASTINGS
DEPENDABLE

What We Mean by Interior Soundness

THE casting pictured to the left, above, is an example of what we mean by *interior soundness.* In this particular job the light section at the lower end of the piece tends to draw the metal as the casting cools. The natural result of such an action is a "shrink hole" somewhere along the lower end of the thicker head. A casting with such a defect must either be scrapped or be passed on with the danger of breakage in service. Here, as in so many other cases, Sivyer Foundry Practice has been able to eliminate both dangers for the manufacturer. A careful study of the part has led to the proper distribution of "heads," "gates," "risers" and "feeders" on the casting pattern. As a result, the natural "shrink" has been definitely "licked." How completely, is illustrated by the fact that not a single one of these castings has been reported as having broken in service.

SEND BLUE PRINTS

If you are having trouble with castings cast in other metals or by other methods, it is quite probable that Sivyer Electric Steel may be your solution.

At any rate the cost of sending us blue prints of the parts giving trouble is small — and we will be glad to tell you all we can without obligating you in any way.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE
MID-CONTINENT OFFICE: 1415 F. & M. Bank Bldg., Fort Worth, Texas

'NOTHING FINER FOUND—ABSOLUTELY ROUND

Repeat Orders Prove Worth of Atlas Valve Balls

THERE isn't any secret why leading producers in oil fields continue to specify Atlas Balls for their Working Barrel Valves year after year.

Accuracy of size and sphericity, quality of steel, hardening, all the factors that make for the closest approach to perfection are embodied in Atlas Balls. But more than these is stamina—which assures twenty-four hour service, day after day if necessary, without frequent pulling for replacements and consequent loss from an idle oil well.

Where ultimate profits are put before first cost—there you will find Atlas Valve Balls and the reason "why" of repeat orders. Take a tip from the industry's leaders—on your next replacement install Valve Units containing Atlas Balls. If your supplier hasn't 'em in stock, write us.

Atlas Ball Company
Glenwood Ave. at Fourth St.
Philadelphia, Pa.

1565

	Jan., 1926	91	196	280	386	426	273
Difference		—2	—6	+3	+3	—2	...
Washington:	Jan., 1925	99	191	256	375	421	261
	Jan., 1926	101	194	261	381	426	266
Difference		+2	+3	+5	+5	+5	+5
Pittsburgh:	Jan., 1925	94	181	250	384	434	267
	Jan., 1926	98	182	247	371	425	255
Difference		+4	+1	—3	—13	+1	—2
Chicago:	Jan., 1925	101	199	270	393	430	273
	Jan., 1926	89	190	271	393	432	271
Difference		—12	—9	+1	...	+2	—2
New Orleans:	Jan., 1925	106	208	279	384	433	277
	Jan., 1926	99	201	276	383	430	272
Difference		—7	—7	—3	—1	—3	—5
St. Louis:	Jan., 1925	92	198	273	388	430	272
	Jan., 1926	91	192	266	389	426	269
Difference		—1	—6	—7	+1	—4	—3
Bartlesville:	Jan., 1925	89	187	271	391	435	269
	Jan., 1926	92	180	278	403	433	271
Difference		+3	—7	+7	+12	—2	+2
Denver:	Jan., 1925	86	199	270	382	420	268
	Jan., 1926	84	181	252	363	406	252
Difference		—2	—18	—18	—19	—14	—16
Laramie:	Jan., 1925	90	190	263	377	414	262
	Jan., 1926	81	183	256	367	405	254
Difference		—9	—7	—7	—10	—9	—8
San Francisco:	Jan., 1925	98	194	254	366	417	258
	Jan., 1926	100	190	253	365	418	258
Difference		+2	—4	—1	...	+1	...

TABLE 6
Comparison of July, 1925 and January, 1926, Surveys

District—	Date	First Drop	20%	50%	90%	End Point	Aver. B. P.
New York:	July, 1925	108	212	284	388	436	279
	Jan., 1926	91	196	280	386	436	273
Difference		—17	—16	—4	—2	...	—6
Washington:	July, 1925	121	203	266	382	427	273
	Jan., 1926	101	194	261	381	426	266
Difference		—20	—9	—5	—1	—1	—7
Pittsburgh:	July, 1925	115	192	254	380	424	263
	Jan., 1926	98	182	247	371	425	255
Difference		—17	—10	—7	—9	+1	—8
Chicago:	July, 1925	111	212	285	398	433	284
	Jan., 1926	89	190	271	393	432	271
Difference		—22	—22	—14	—5	—1	—13
New Orleans:	July, 1925	103	205	281	384	435	274
	Jan., 1926	99	201	276	383	430	272
Difference		—4	—4	—5	—1	+5	—2
St. Louis:	July, 1925	106	206	278	392	434	278
	Jan., 1926	91	192	266	389	426	269
Difference		—15	—14	—12	—3	—8	—9
Bartlesville:	July, 1925	100	199	287	400	435	281
	Jan., 1926	92	180	278	403	433	271
Difference		—8	—19	—9	+3	—2	—10
Denver:	July, 1925	102	205	278	387	435	276
	Jan., 1926	84	181	252	363	406	252
Difference		—18	—25	—26	—24	—19	—24
Laramie:	July, 1925	104	200	270	381	415	270
	Jan., 1926	81	183	256	367	405	254
Difference		—23	—17	—14	—14	—10	—16
San Francisco:	July, 1925	109	203	262	378	422	267
	Jan., 1926	100	190	253	368	418	258
Difference		—9	—13	—9	—10	—4	—9

Reports of Investigations, Bureau of Mines, Department of Commerce.

CALIFORNIA OIL FIELD OPERATIONS FOR FEBRUARY

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for February amounted to 17,163,963 bbls., an average of 612,999 bbls. per day. This is a decrease of 2,148 bbls. per day under January production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 1,190,586 bb's. The total stocks at the end of the month were 155,777,244 bbls. The total stock increase for 1926, up to February 28, 1926, was 1,981,562 bbls. Comparative figures as of February 28, 1926, January 31, 1926, and February 28, 1925, are shown in detail in table form of this report.

Ninety-six wells were completed during the month with an initial daily production of 26,969 bbls., compared with 73 wells completed during January with an initial production of 33,548 bbls.

PRODUCTION
(Figures of production and stocks are in barrels of 42 gallons)

District—	Barrels Per. Mo.	Daily Average Feb.,1926	Daily Average Jan.,1926	Daily Average Feb.,1925
Kern River	343,628	12,272	11,953	17,848
McKittrick	150,987	5,392	5,611	5,704
Midway-Sunset	2,584,282	92,296	92,744	104,143
Elk Hills	903,682	32,274	30,220	37,738
Lost Hills-Belridge	118,924	4,247	4,388	5,075
Coalinga	574,841	20,530	18,951	22,536
Wheeler Ridge	26,832	958	963	1,060
Watsonville	1,610	58	58	57
Santa Maria	158,049	5,645	5,192	7,405
Summerland	3,429	122	129	145
Ventura-Newhall	990,955	35,391	37,348	20,560
Los Angeles-Salt Lake	53,634	1,916	1,845	2,186
Whittier	58,664	2,095	2,120	2,056
Fullerton	423,368	15,120	14,061	11,715
Coyote	463,389	16,567	17,153	19,711
Santa Fe Springs	1,397,289	49,903	49,351	50,140
Montebello	497,790	17,778	17,721	19,284
Richfield	368,417	13,158	12,818	10,855
Huntington Beach	1,265,716	45,204	46,003	40,909
Long Beach	3,186,230	113,794	111,608	118,503
Torrance	818,823	29,244	30,694	41,435
Dominguez	626,895	22,389	23,549	51,075
Rosecrans	600,697	21,453	23,553	11,882
Inglewood	1,542,463	55,088	57,033	480
Newport	2,869	102	93	.....
Total	17,163,963	612,999	615,147	602,494
January	19,069,563	615,147	.....	.....
Decrease	1,905,600	2,148	.....	.....

STOCKS

	Feb. 28, 1926	Jan. 31, 1926	Feb. Stock Increases	Feb. 28, 1925
Heavy crude, heavier than 20° A.P.I, including all grades of fuel	83,642,128	83,572,907	69,221	58,714,880
Refinable crude, 20° A.P.I., and lighter	44,463,968	43,802,077	661,891	42,629,850
Gasoline	10,670,895	10,252,936	417,959	12,058,682
Naphtha Distillates	6,666,518	6,702,299	*35,781	7,888,410
All other stocks	10,333,735	10,256,439	77,296	8,042,788
Total all stocks	155,777,244	154,586,658	1,190,586	129,334,610

*Decrease.

DEVELOPMENT

District—	New Rigs Up	Active Drlg.	Comp.	Daily Init. Output	Active Prod.	Abd. Wells Drillers	Abd. Wells Prod.
Kern River	3	4	1	150	1,599	..	..
McKittrick	2	8	...	.....	301	..	..
Midway-Sunset	5	44	9	1,167	2,922	3	1
Elk Hills	..	2	2	740	240	..	..
Lost Hills-Belridge	1	4	...	.....	295	..	..
Coalinga	1	9	1	106	953	..	..
Wheeler Ridge	...	2	...	.....	22	..	..
Watsonville	...	...	...	.....	6	..	..
Santa Maria	...	7	1	85	252	..	..
Summerland	...	...	...	.....	135	..	..
Ventura-Newhall	6	48	2	260	589	..	..
Los Angeles-Salt Lake	...	...	...	.....	387	..	..
Whittier	2	4	...	.....	188	..	..
Fullerton	2	10	...	.....	404	..	..
Coyote	...	5	...	.....	210	..	..
Santa Fe Springs	...	3	1	134	336	2	4

Dependable Power for Every Purpose

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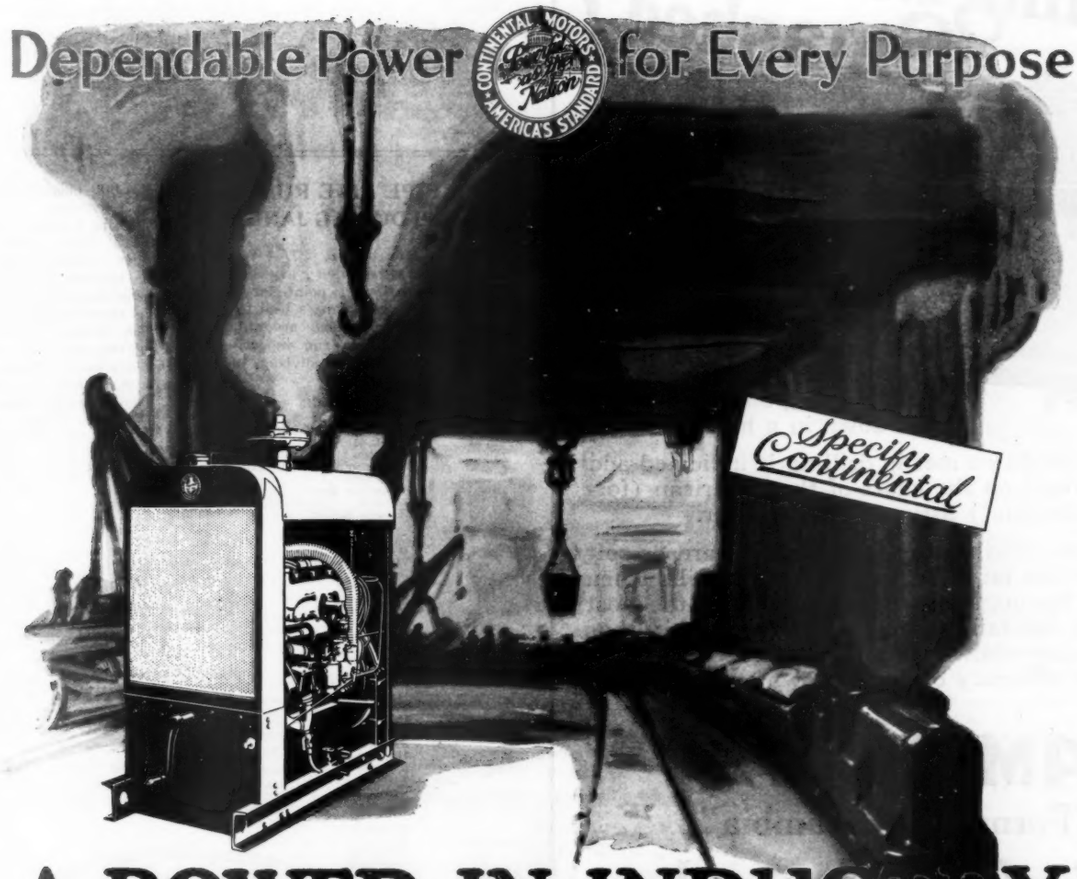

A POWER IN INDUSTRY

In industrial machinery today the power plant plays a big part in successful, daily operations. It is a mighty factor in production and profits.

Continental Motors fully meet the needs of industrial users because they are designed from a thorough knowledge of this particular field, are long lasting, dependable and economical.

As a result they give unusual service at low cost over a long period of time.

Specify Continental for dependable, industrial power.

CONTINENTAL MOTORS CORPORATION
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Drilling Records Smashed!

Oil Wells Brought in at Big Time and Money Saving

Now the "guess" has been removed from drilling. For the first time it is now possible for the drilling crew to see what is going on thousands of feet down in a hole.

Every condition met in drilling is indicated and recorded right on the chart of the American (formerly "Columbia") Strip Chart Recorder.

It shows whether the formation is hard or soft—whether the bit is drilling ahead and tells when a twist-off has occurred—indicates which is the most efficient, a fish-tail or some other type of bit, thus saving steam—shows whether the crew is working at highest efficiency or laying down on the job.

AMERICAN
(Formerly "Columbia")
Strip Chart Recorder

also gives the time required to go in and out of hole; the time of changing and getting back to bottom and the progress of fishing.

Many other important records are indicated on the 90-foot chart of American Strip Chart Recorder. And the records are easy to read on the wide open chart. The completed record is automatically wound up as drilling progresses.

Concerns like Helens Petroleum Company have materially cut the time and cost of drilling wells with this recorder. Why not get the facts? *Write for American Strip Chart Recorder Catalog.*

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Montebello	4	6	2	300	166	1	..
Richfield	2	9	...	.....	184	..	..
Huntington Beach	3	10	4	962	346	..	..
Long Beach	78	147	57	17,471	681	2	5
Torrance	...	5	5	632	592	..	5
Dominguez	2	5	...	.....	64	..	..
Rosecrans	...	12	5	1,094	119	..	..
Inglewood	2	9	5	3,803	184	2	1
Newport	3	4	3	65	11	..	..
Miscellaneous drilling	8	100	...	.....	...	8	..
February	126	457	98	26,969	11,186	18	16
January	115	469	73	33,548	11,108	20	18
Decrease	*11	12	*25	6,579	*78	2	2
Average for Year 1925	105	417	79	42,247	11,393	28	12
Average for Year 1924	103	510	103	42,412	10,903	28	21
Average for Year 1923	111	759	82	114,690	8,928	25	
Average for Year 1922	115	605	67	43,700	9,410	17	
Average for Year 1921	90	536	57	15,631	9,425	14	

*Increase.

TEXAS PIPE LINE RUNS LESS DURING JANUARY

AUSTIN, Tex., Mar. 27.—Wichita County's oil production in January dropped to the lowest point for many months, as Reagan County's lead in production was strengthened, according to the monthly pipe line run report compiled by the oil and gas division of the state railroad board.

Total production for the month was 10,357,806 bbls., a drop of 259,000 bbls. from December.

Wichita County's total oil output was 519,416 bbls. For months, Wichita County produced more than 1,000,000 bbls. monthly. However, the pipe line reports do not reflect full production, as oil is stored up for later runs.

The Reagan County Field produced 1,590,107 bbls., with the Big Lake Field the only one in Texas accounting for over a million barrels in January.

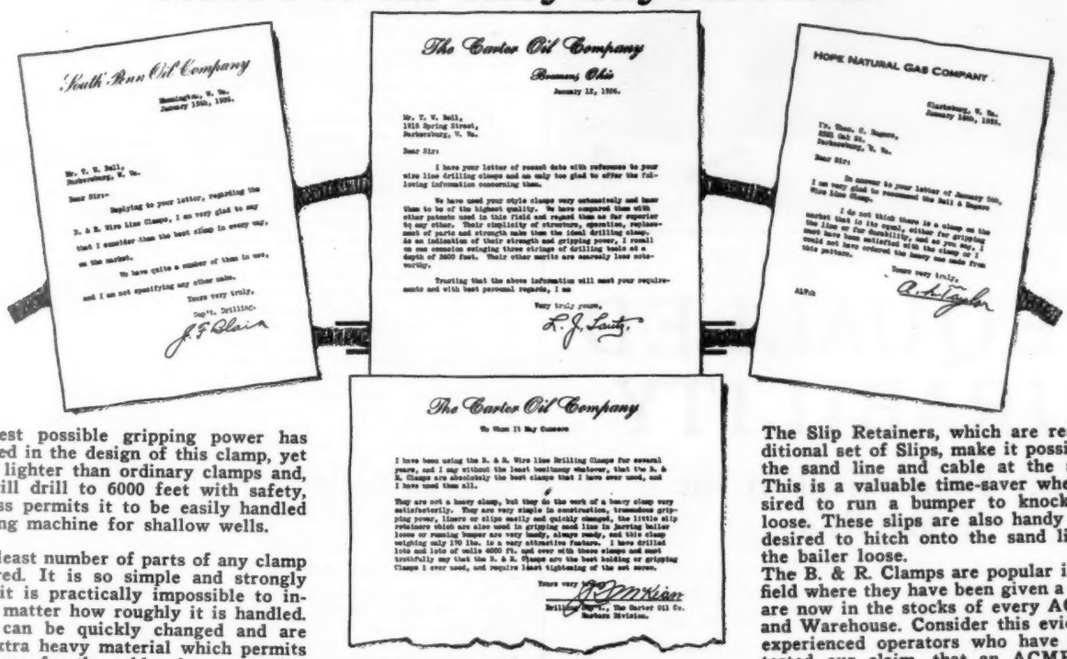
The report for January follows:

County—	Field or Station—	Total Barrels (Field)	Total Barrels (County)
Archer:	Clark-Harmel	15,947.82	
	Hausler	14,325.44	
	Freeman-Wilson-Phillips	77,891.23	
	Megargel	74,161.84	
	Swastika-Davis	190,538.64	
	Wilmot	42,551.34	
	Wilson Ranch	195,725.01	611,141.32
Atascosa:	Somerset	2,990.18	2,990.18
Bexar:	Somerset	2,990.18	2,990.18
Brazoria:	Damon Mound	25,111.25	
	West Columbia	274,071.59	299,182.84
Brown:	Byrd	4,101.35	
	Cross Cut	44,315.13	
	May	12,890.54	
	Pickett	31,843.33	93,150.35
Callahan:	Putnam	68,333.29	68,333.29
Caldwell:	Dale	207,643.75	207,643.75
Carson:	Burnett	72,101.19	72,101.19
Chambers:	Barber's Hill	656.73	656.73
Clay:	Petrolia	4,074.40	4,074.40
Comanche:	Copperas Creek	6,545.98	
	Desdemona	9,667.17	
	Peak	24,470.39	40,683.54
Eastland:	Colony Creek	53,547.83	
	East	5,154.12	
	Fleming	83,796.57	
	Henson	9,718.83	
	Pioneer	4,870.68	
	Tiffin	3,996.92	161,083.95
Falls:	Chilton	346.89	346.89
Fort Bend:	Big Creek	28,061.77	
	Blue Ridge	16,852.85	
	Moore	7,234.94	52,149.56
Freestone:	Mexia	241,360.48	
	Simmons	84,438.21	
	Wortham	225,354.63	551,153.32
Galveston:	High Island	231.50	231.50
Guadalupe:	Sullivan	17,266.20	17,266.20
Harris:	Baytown	100,751.55	
	Goose Creek	174,578.64	
	Humble	118,761.90	
	Pierce Junction	36,575.46	430,667.55
Hardin:	Batson	31,624.54	
	Saratoga	42,644.20	
	Sour Lake	132,223.66	206,492.40
Jack:	Hensley	10,487.96	10,487.96
Jefferson:	Spindletop	122,841.67	122,841.67
Liberty:	Dayton	70,577.42	
	D. Harrison	500.23	
	Hull	484,516.18	
	South Liberty	163,406.59	719,000.42
Limestone:	Groesbeck	520,527.15	
	Mexia	387,477.28	908,004.43
McMullen:	Callahan	5,416.00	5,416.00
Matagorda:	Markham	2,229.27	2,229.27
Marion:	Potters	2,229.34	2,229.34
Mitchell:	Westbrook	84,685.25	84,685.25
Navarro:	Corsicana	28,587.95	
	Currie	29,184.81	
	Powell	280,218.63	
	Richland	47,486.98	385,478.37
Orange:	Cow Bayou	134,741.29	
	Orange	266,575.87	
	Terry	20,731.19	422,048.35
Palo Pinto:	Graford	30,826.97	
	Hoherts	25,642.74	56,468.71
Reagan:	Big Lake	1,000,736.89	
	Kemper	589,370.56	1,590,107.45
Shackelford:	Terry	4,477.24	
	Moran	28,785.70	
	Poindexter	21,945.50	55,208.44
Throckmorton:	Eliasville	1,678.17	1,678.17
Stephens:	Ackers	8,303.25	
	Atkins	25,633.71	
	Brazos	164.80	
	Breckenridge	131,818.25	
	Chaney	28,589.48	
	Clear Fork	89,450.43	
	Farnbrough	33,556.13	
	Harris	26,322.20	
	Rogers	11,517.22	
	Stephens	15,522.01	370,877.45
Young:	Bend	23,546.37	
	Bungar	27,383.77	
	Jenkins	17,906.48	
	Olney	188,243.16	257,079.78
Webb:	Mirando	158,036.53	158,036.53
Wharton:	Boling	144,385.60	144,385.60
Wichita:	Burkburnett	313,552.97	
	Crites	16,622.88	
	Devol	41,716.64	
	Holliday	70,096.18	
	Mitchell	8,954.26	
	Red	13,646.17	
	Serrien	12,509.45	
	Valley	36,418.31	519,416.86
Wilbarger:	Vernon	393,310.04	393,310.04
Various:	De Leon	52,105.28	
	Electra	571,693.52	
	Luling	582,720.66	
	Pan-Tex	18,736.19	
	Ranger	98,221.20	1,323,476.85
	Total	10,357,806.11	10,357,806.11
	Total December	10,616,861.28	10,616,861.28

THE B & R WIRE LINE DRILLING CLAMP

This new member of the ACME family of Drilling and Fishing Tools was formerly manufactured by CARTER OIL CO. South Penn Oil Co., Hope Natural Gas Co., Carter Oil Co., Standard Oil Co. (N. J.) and several other large companies have used this clamp almost exclusively and prefer it to any other.

Here's What They Say About It---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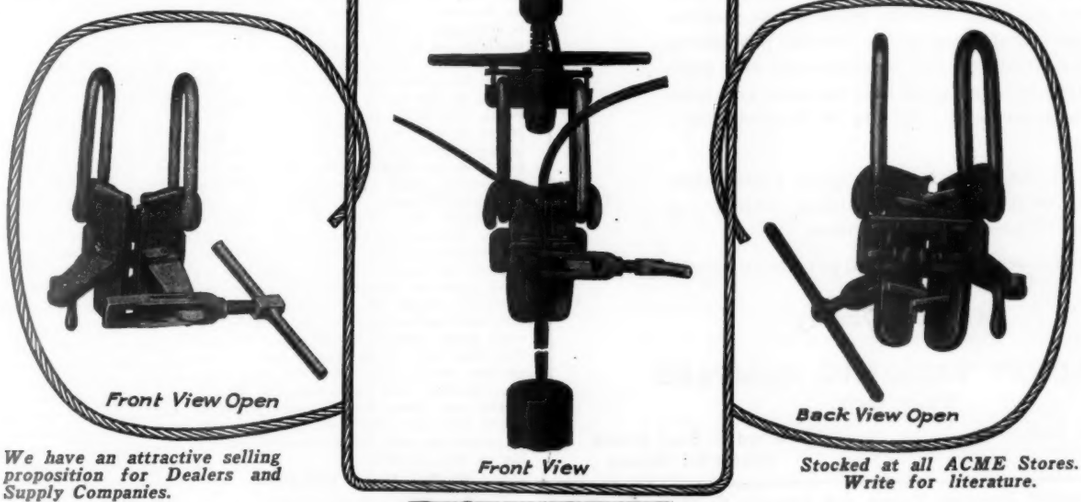
The greatest possible gripping power has been secured in the design of this clamp, yet it is much lighter than ordinary clamps and, while it will drill to 6000 feet with safety, its lightness permits it to be easily handled on a drilling machine for shallow wells.

It has the least number of parts of any clamp manufactured. It is so simple and strongly built that it is practically impossible to injure it, no matter how roughly it is handled. The slips can be quickly changed and are made of extra heavy material which permits a deep groove for the cable, thus protecting the line and giving both liners and cable a much longer life.

The Slip Retainers, which are really an additional set of Slips, make it possible to grip the sand line and cable at the same time. This is a valuable time-saver when it is desired to run a bumper to knock the tools loose. These slips are also handy when it is desired to hitch onto the sand line to jerk the bailer loose.

The B. & R. Clamps are popular in every oil field where they have been given a trial. They are now in the stocks of every ACME Store and Warehouse. Consider this evidence from experienced operators who have thoroughly tested our claim, that an ACME B. & R. WIRE LINE CLAMP is "the simplest Clamp with the greatest gripping power."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Front View

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KEYSTONE COPPER STEEL

2,000-Bbl. Maloney Tanks, Signal Hill

UNEQUALLED DURABILITY

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MALONEYS are built of the best tank material the market affords—rust-resisting Keystone Copper Steel. In scientific tests of endurance copper-bearing steels have outlasted all other types.

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Distributors at all principal petroleum points.

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MALONEY TANK MFG. COMPANY
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12 to 3,000 Bbls. Capacity

Packed in Steel-Bound Crates for Export

"Buck" Type Vacuum Pressure Valves and Vacuum Breakers Furnished

MADE OF KEYSTONE COPPER STEEL — MALONEY PATENTED BOLTED COPPER-STEEL TANKS — MADE OF KEYSTONE COPPER STEEL

MALONEY

"ALONE"

NEAR SHORE CONDITIONS IMPORTANT IN LOCATING PETROLEUM DEPOSITS

By E. B. Branson*

Geologists have long recognized the importance of near shore conditions for oil accumulation. This recognition originated in the knowledge that the animals and plants from which oil is derived live either in shallow water or belong to the plankton where life is most abundant from 60 to 150 feet below the surface. The depth at which animals and plants live in abundance is not well known and the depth to which the plankton may settle to the bottom and furnish droplets of oil is not known.

Though the importance of near shore conditions for oil accumulation are so well known, some things associated with this are neglected by many oil geologists. The recent exploration for oil in the Dakota sands neglected, in most cases, the needed shore conditions of the sediments furnishing oil and the formation was considered about as promising one place as another. Even though the underlying sediments were nonmarine and the overlying were all shales without abundant fossils drilling was recommended. Geological work in the Mid-Continent fields where the waters were so shallow that animals and plants could live over wide areas and oil might form in belts many miles in width presents great differences from work in rocky mountain areas. If the proper near-shore conditions for oil formation were not present in one formation in the Mid-continent Field, they were likely to be present in another above or below and drilling was likely to succeed at one level if not at another.

Little Data Available

In investigating near-shore sedimentation, one finds himself working with little data. E. M. Kindle's recent work in Lake Ontario furnishes many valuable facts, but is only a beginning. Students of sedimentation know that fine sand may be carried out somewhat beyond the limit of rather strong wave action on the bottom. In open seas this depth is probably nearly 500 feet, though investigations leave this an open question. Mr. Kindle's information, obtained from divers for wrecking concerns is that wave action in the lakes is strong enough to break up iron ships and move large pieces of coal at depth of 60 feet, and hammer ships to pieces at depth of 100 feet. Some investigators have thought that strong wave action may be effective at depths of more than 1,000 feet. Let us assume that only the very unusual storm waves may move sand of 1/64 mm. in size at depths as great as 500 feet.

This will mean that the presence of sand lenses in limestones and shales indicates a depth of water of less than 500 feet and conversely the absence of such sands usually means depth greater than 500 feet. It is always possible for shallow water areas to exist separated from shallow near shore areas by deeper water and these would show no sand lenses but they would not be important in connection with oil accumulations owing to lack of life.

Shallow Water Indications

Conglomerates ordinarily signify water less than 100 feet deep or proximity to shore of less than a mile. Occasional pebbles in shales, limestones and sandstones have little significance as they may drift out on ice or floating vegetation. One bed of sandstone in a thick shale series should indicate water less than 500 feet deep. This may be far from shore but should give the investigator a start in finding the direction of shore. The appearance of other sandstone lenses in one direction indicates the general direction of shore. The outer sand lenses probably mean great storms when the storm waves struck bottom at unusual depths and shifted the sands far out. On a gently sloping sea bottom this might be 10 miles or more from shore. Shoreward sand lenses would be more and more numerous and each lense would be thicker until within a mile or two of shore and in water less than 100 feet deep sand would make up all or nearly all of the deposit.

Many sandstones like the Dakota were formed in the edge of advancing seas as beaches and in the zone out to 500 feet in depth. Apparently this 500 feet depth extended several miles from shore in Dakota times as there are few sand lenses in the overlying shales in most places. Also the seas were supplied with abundant sands by streams or the sands would be interbedded with shale. Also the lands were sinking or the sea level rising while the Dakota seas were advancing and 100 feet of sandstone formed in water never more than 500 feet in depth. The seas of Dakota time were not affected by great storms as in that case the sandstone would show more alternations of sandstone and shale. The Dakota probably formed in a belt several miles, possibily up to 20 miles. Its general slope is less than 25 feet per mile in many large areas where tilting has affected it little since it was formed.

Sparse Life

The lack of abundant marine fossils in the Dakota probably signifies sparse life and poor living conditions. The shales overlying the Dakota are usually sparsely fossiliferous for considerable thickness, indicating sparse life.

Another factor in the conditions favorable for oil formation near shores is conditions favorable for life. Too little has been done on animal distribution in the shallower waters of the ocean to warrant positive statements. Strongly shifting sands are unfavorable for most types of sea life and remains of animals are usually rare in crossbedded lenticular sandstones. Beyond the zone of frequently shifting sands life in abundance is generally present. Living plants are rarely found below a depth of 300 feet and oil originating from plants is not likely to form in water much deeper than that. It seems probable that petroleum formed mainly on the sea bottom while small amounts of sediments were being deposited rather than from floating plants and animals as the size of clay particles far from shore are too small to carry down the forming droplets of oil. If such be the case we may expect most oil to have formed in depths less than 600 feet. This would extend into the clay zone where no sands are deposited. We might expect oil to form outside the sand zone and to be available for migration into overlying sands if such were present or into underlying or laterally lying sands if conditions were favorable.

In Mid-Continent Area

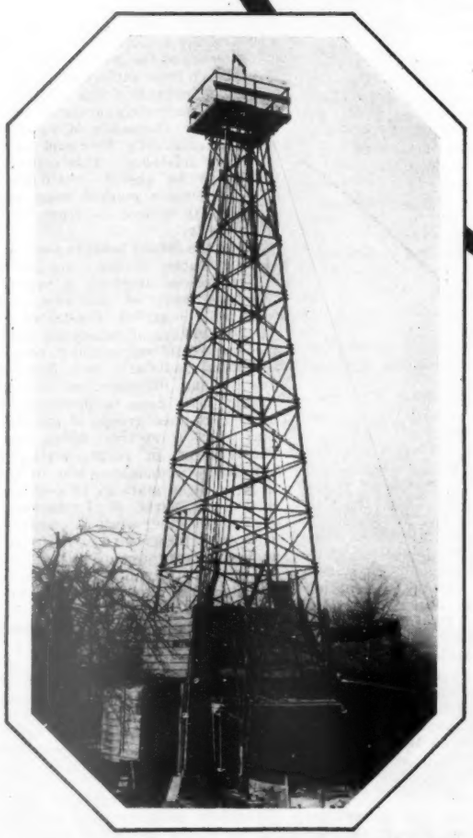
In the Mid-Continent region shallow waters extended far from shore. Perhaps the entire extent of the seas at many times was shallow enough for oil accumulation and favorable structural conditions are all that are necessary for the geologist to discover to make successful drilling likely. In the Rocky Mountain region such conditions were not present during Cretaceous and other periods. The sea bottoms shelved rather rapidly to depths too great for oil accumulations and the oil zone is likely to correspond fairly close to the nearshore sandstone and shale deposits. These are usually less than 10 miles wide as the bottom slopes were nearly always greater than 60 feet per mile and 5-mile belts are more probable than 10-mile.

The sandstones formed in advancing seas and the shales that accumulated over them are not favorable for oil as a particular area remained under shallower water conditions too brief a time for large amounts of oil to form. It is only where the sea margins were nearly stationary for long periods of time that large quantities of oil could accumulate. Such conditions may be recognized by geologists if they are permitted to spend enough time in areas to work out the necessary data. Hundreds of thousands

*Before American Association of Petroleum Geologists, Dallas.

Reserve Strength

counts on the long, hard pull



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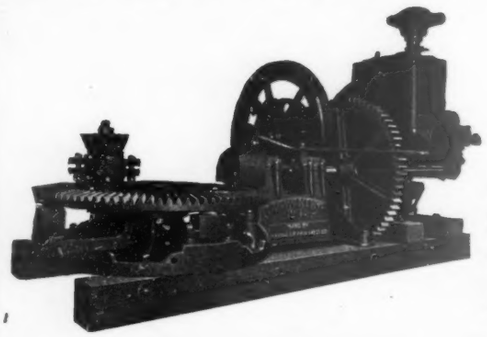

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Many leases will never justify the cost of installing and operating band wheel powers.

Others need testing to prove a profitable pumping yield.

This power will handle wells as deep as 1600 feet with surprising economy. Another feature is that rod lines hug the ground closer than with any other geared power.

Band wheel powers are burdensome for some sizeable leases —especially where the drilling-up program is delayed; or where the lay of the land does not permit a centralized power unit.

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Self Oiling

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The most powerful all-purpose grip made. Operates like a wire line drilling clamp.

Weight 20 lbs.

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of square miles may be underlain by a formation thought to be oil-bearing but investigation may show that less than 5 per cent of this has the needed near-shore indications.

A geologist's first duties in a new area then should be to discover the shore relationships of the formation under investigation. Such determinations will take a long time and may prove impossible, but in many areas they are feasible and in the long run will save time and will greatly reduce the number of failures.

MICROSCOPICAL RESEARCH IN CALIFORNIA PETROLEUM FIELD

By G. Dallas Hanna*
Pacific and Associated Oil Companies

Microscopical research in the study of petroleum geology began in California in 1919 and at the beginning of 1925 laboratories for such activity had been established by seven of the largest companies; 23 people were engaged in the work. In addition, Standford University and the University of California were devoting special attention to this branch. Results accomplished seem to have met with the approval of the officials of all of the companies concerned and no company which has started in the work has given it up.

Credit for the original discovery that the micro-organisms could be used for correlation of sediments in California belongs to E. Call Brown, of the California Petroleum Corp. This was in October, 1919, and during the development of the Huntington Beach Field.

Dr. J. P. Smith, professor of palentology of Stanford University, took a great deal of interest in the work. In the fall of 1921, F. O. Tickell, working under a grant from several of the California oil companies, began a series of investigations at Stanford University on the micro-contents of California sediments.

Research was continued at the California Academy of Sciences from 1922 to May, 1923, when J. A. Taff and E. G. Gaylord, of the Pacific and Associated Oil companies, believed the results to be sufficiently encouraging to warrant more extensive investigations. Doctor Overbeck, one of the geologists of the Shell Co. of California, began extensive studies about the same time.

In June, 1921, the Pacific Gas & Electric Co., began the drilling of a deep test well about 20 miles east of Suisun, Calif.

The geological work was under the direction of Dr. Bailey Willis, of Stanford University, who arranged to have three former graduates in geology stationed at the well and they carried on extensive miscroscopical studies on the sediments encountered. Those so employed were Ralph Copley, David Anderson and Thomas Radcliffe (replaced by Thomas F. Stipp.)

On Miscroscopical Work

The following list as of January 1, 1926, gives the names of those institutions and companies with the employes who are pursuing microscopical work almost exclusively:

Standford University—Prof. Hubert G. Schenck, Prof. F. G. Tickell; University of California, Prof. Bruce L. Clark.

Associated Oil Co.—Work started in May, 1923; Dr. G. Dallas Hanna and T. F. Stipp; California Petroleum Corp., work started in October 1919; E. Call Brown and one assistant; Maryland Oil Co. of California, work started in summer of 1923; Dr. R. D. Reed, Donald D. Hughes, James P. Bailey, J. M. Hamill and C. C. Church; Milham Exploration Co., work started in June, 1924; Dr. George H. Doane and Paul T. Goudkoff; Shell Co. of California, work started in 1923; Dr. Guy E. Miller, John D. Gilboe, Eros M. Savage and Miss Dosca W. E. Monical; Standard Oil Co. of California, work started February, 1925; H. L. Driver, Frank Tolman, G. R. Elliott, Victor Davenport, Harold M. Horton and E. C. Meek; Union Oil Co. of California, work started January 1, 1925; Stanley A. Wisler and one assistant.

The activities of the two universities consist essentially in giving students training in those branches of science which will fit them best to fill positions as microscopists with the geological departments of the oil companies. The courses primarily given with this in view deal with the technique of handling micro-organisms and mineral grains and classification of both. Material from wells is supplied from time to time by the companies.

Work By Companies

The work in the laboratories of the companies consists essentially in the making of actual correlation from well to well or region to region based on the constitutents of samples therefrom and research work leading to this end. Typical sections of surface samples are often taken in order to have them for comparison with samples from wells in the same region. In some cases certain individuals give their time exclusively to mineral grains and others again to micro-organisms, but in any case the aim has been a means of correlation or the definite fixing of recognizable subsurface zones. In some cases this has been attained with signal success; again months of the most painstaking effort have been expended for naught. Particular difficulty is encountered in the Los Angeles Basin where the Pliocene attains a thickness approximating 8,000 feet. Various fossil bearing horizons are repeated in such a way that certainty of close correlation becomes hazardous.

Early recognition was given to the fact that permanent preservation of core samples from various localities would be well worth while because it must be acknowledged that a series of such samples from a well forms a much better and more reliable record of the geology than a similar series taken from surface outcrops. Therefore that institution has provided space under approximately fireproof conditions where many thousands of samples have been systematically filed and catalogued for ready reference. This collection has proved to be almost invaluable when, after a definite marked zone has been found it is desired to trace its extent horizontally.

What the future holds in store is necessarily a matter of conjecture but if nothing unforeseen develops, it appears that one final result of this new profession will be a complete illustrated treatise on those groups of organisms most often encountered in well samples, namely, foraminifera, radiolaria, silicoflagellata, ostracoda and distomaceae. Enough has already been done to demonstrate positively that these groups of minute organisms contain species which are sufficiently short in range, vertically, and sufficiently abundant while in existence to be used as markers of geological formation or parts of formations. Undoubtedly further work will disclose many more such forms than we now recognize and will thus promote the efficiency of our efforts. It will be desirable to know the biological classification of the members of each group, but as has often been said, this is not one of the necessities for correlation work. In fact a person may become so familiar with the constituents of a given formation that he need not know the scientific name of a single organism or mineral therein in order to use the markers for correlation; nevertheless, it must be admitted that the lack of such knowledge is a considerable handicap.

Also it is fully expected that many changes in technique will develop in the future. This inevitably follows in the advancement of a new science and hardly a month passes in any laboratory engaged in the work without some new discovery in this line being made or some short cut developed whereby efficiency, accuracy and rapidity are increased.

*Before American Association of Petroleum Geologists, Dallas, Tex.

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EVERY pipe line of any importance passes through one or more of these "battlefields of rust," and meets there the most destructive forces of corrosion.

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ECLIPSE Save-A-Line insures your pipe lines against corrosion. Test after test by our Research Department and years of actual usage by the leading pipe line companies under all conditions of soil, moisture and climate have proved that *ECLIPSE Save-A-Line* leads in—

1. Effective and long-lived protection.
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Eclipse SAVE-A-LINE is made in black only. It requires no stirring or heating and can be applied just as it comes from the package. This eliminates fire hazard and also possible injury to the workmen who handle hot materials. It covers approximately 140 square feet to the gallon, with an exceptionally thick film, four to five times thicker than ordinary paint. Only one application is necessary.

We are confident it will be a lasting and profitable investment for you. A small trial order will prove it.

This product was formerly our Eclipse Asbestos Pipe Line Paint

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MID-CONTINENT PRODUCTION FELL 10,525 BARRELS A DAY IN FEBRUARY

The combined production of the states of Kansas, Oklahoma, Texas, Arkansas and Louisiana, comprising the Mid-Continent, the Gulf Coast and the Southwest Texas fields, averaged 1,117,689 bbls. a day in February, a decline of 8,203 bbls. from the January production figures, and a falling off of 26,891 bbls. as compared with the daily average production for Februry, 1925. With the exception of an increase of 1,292 bbls. per day in Oklahoma, the decline was general.

The Mid-Continent Field, which does not include the Gulf Coast and the Southwest Texas Fields, produced an average of 977,713 bbls. a day in February, as against 988,238 bbls. in January, indicating a falling off of 10,525 bbls. per day.

Compared with the production in February last year, some pronounced changes are shown. Oklahoma in February, 1925, produced 496,635 bbls. a day; February, 1926, 442,415 bbls., a decline of 54,210 bbls.; Kansas, February, 1925, 88,095 bbls.; February, 1926, 102,779 bbls.; a gain of 14,684 bbls.; Texas, February, 1925, 401,164 bbls.; February, 1926, 346,040 bbls., a decline of 55,124 bbls.; Arkansas, February, 1925, 103,082 bbls.; February, 1926, 169,887 bbls., an increase of 66,805 bbls.; Louisiana, February, 1925, 55,604 bbls.; February, 1926, 56,568 bbls., a gain of 964 bbls.

Following are the figures showing production by pool and district in each of the states:

PRODUCTION BY DIVISIONS

Mid-Continent Fields

	Daily Av.	Mo. Prod.
Kansas	102,779	2,877,812
Oklahoma	442,415	12,387,620
North Texas	81,619	2,285,332
Central Texas	74,803	974,484
West Texas	32,631	913,668
Panhandle Texas	5,438	152,264
East Central Texas	62,141	1,739,948
Arkansas	169,887	4,756,836
North Louisiana	46,000	1,288,000
Total Feb.	977,713	27,375,964
Total Jan.	988,238	30,635,461
Difference	10,525	3,259,497

Gulf Coast-Southwest Texas

	Daily Av.	Mo. Prod
Gulf Coast (Tex. and La.)	100,736	2,820,608
Southwest Texas	39,240	1,098,720
Total Feb.	139,976	3,919,328
Total Jan.	137,654	4,267,274
Difference	2,322	347,946

SUMMARY BY STATES

	Daily Av.	Mo. Prod.
Kansas	102,779	2,877,812
Oklahoma	442,415	12,387,620
Texas	346,040	9,689,120
Arkansas	169,887	4,756,836
Louisiana	56,568	1,583,904
Total Feb.	1,117,689	31,295,292
Total Jan.	1,125,892	34,902,735
Difference	8,203	3,607,443

KANSAS

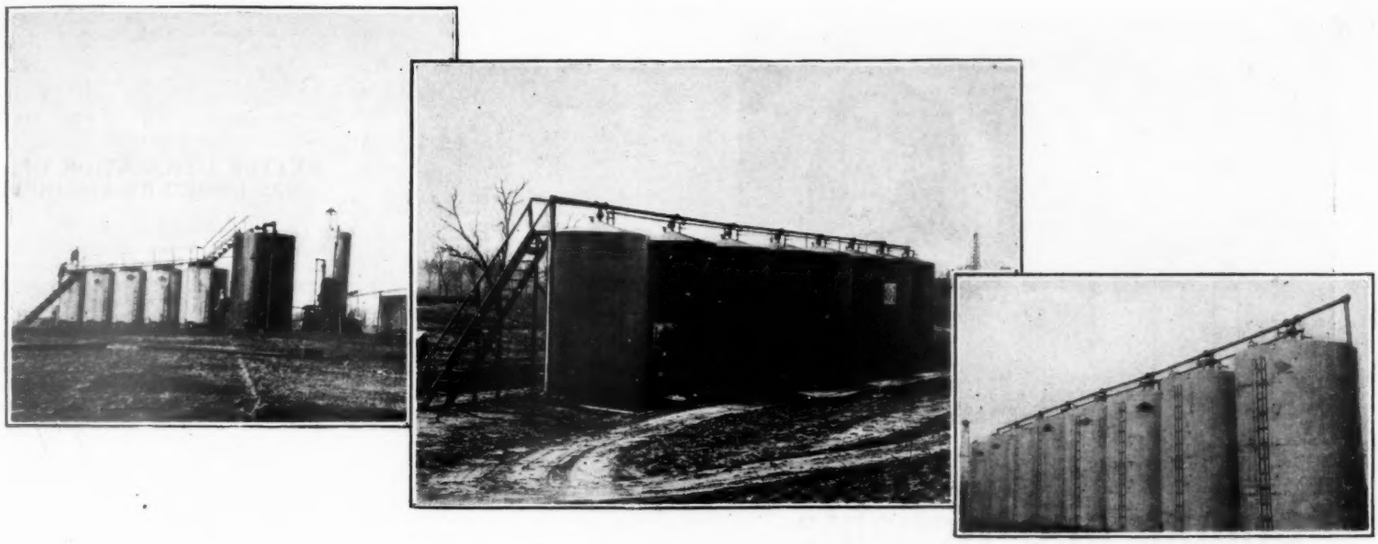
Daily Average and Total Monthly Production in February

	Daily Av.	Mo. Prod.
Marion County:		
Florence	1,023	28,644
Peabody	2,059	57,652
Covert-Sellers	914	25,592
Total	3,996	111,888
Butler County:		
Eldorado	6,109	171,052
Elbing	2,921	81,788
Potwin	537	15,036
Cameron-Robinson	555	15,540
Wilson-Dunkle	1,720	48,160
Towanda	2,750	77,000
Fox Bush	1,897	53,116
Nuttle-Koogler	1,619	45,332
Smock	314	8,792
Leon-Weaver	660	18,480
North Augusta	1,178	32,984
South Augusta	1,827	51,156
Sluss	430	12,040
Douglass	134	3,752
Blankenship	2,290	64,120
Total	24,941	698,348
Greenwood-Woodson Counties:		
Sallyards	1,649	46,172
Teeter-Pixley-Scott	19,340	541,520
Virgil	4,591	128,548
Thrall-Burkett	4,766	133,448
Seely	10,148	284,144
Polhamus	2,467	69,076
Miscellaneous	976	27,328
Total	43,937	1,230,236
Cowley County:		
Rainbow Bend	4,527	126,756
Slick	1,586	44,408
Graham	1,068	29,904
Rock (Twp. 30-4)	368	10,304
Clark (Twp. 31-5)	296	8,288
Eastman (Twps. 30-6 and 31-6)	1,068	29,904
Winfield-New Salem (Twps. 32-4 and 32-5)	2,157	60,396
Miscellaneous	498	13,944
Total	11,568	323,904
Other Counties:		
Sumner	37	1,036
Rice	227	6,356
Russell	5,637	157,836
Harvey	35	980
Chautauqua	2,463	68,964
Elk	1,449	40,572
Wilson	257	7,196
Montgomery	1,940	54,320
Allen	805	22,540
Neosho	664	18,592
Lyon	259	7,252
Miami	458	12,824
Franklin	531	14,868
Douglas	44	1,232
Bourbon	19	532
Linn	240	6,720
Anderson	3,245	90,860
Labette	27	756
Total Feb.	102,779	2,877,812
Total Jan.	104,856	3,250,536
Difference	2,077	372,724

OKLAHOMA

Daily Average and Total Monthly Production in February

	Daily Av.	Mo. Prod.
Washington County	6,908	165,424
Nowata County	4,551	127,428
Rogers County	1,352	37,856
Osage and Eastern Kay Counties:		
Burbank	43,244	1,210,832
Osage, outside Burbank	30,595	856,660
Total	73,839	2,067,492
Tulsa County:		
Bird Creek, Owasso, etc.	3,442	96,376
Red Fork, Sand Springs, Bruner, Turkey Mountain and Fisher	2,010	56,280
Bixby, Leonard and Jenks	1,379	38,612
Broken Arrow and Coweta	1,271	35,588
Total	8,102	226,856
Okmulgee-Muskogee and North Okfuskee Counties:		
Mounds, Beggs, Hamilton Switch, Youngstown	11,276	315,728
Bald Hill and Haskell	3,275	91,700
Morris, Boynton and Cole	3,129	87,612
Okmulgee	2,365	66,220
Tiger Flats, Henryetta and Schulter	4,973	139,244
Total	25,018	700,504
Okfuskee, Seminole and Hughes Counties:		
Deaner-Lyons	4,462	124,936
Wewoka	14,533	406,924
Cromwell	19,745	552,860
Papoose-Gilcrease	12,274	343,672
Okemah	252	7,056
Weleetka	1,613	45,164
Wetumka	80	2,240
Yeager	840	23,520
Total	53,799	1,506,372
Creek County:		
Cushing-Shamrock	21,639	605,892
Mannford and Olive	802	22,456
Glenn Pool, Sapulpa and Kiefer	8,725	244,300
Bristow, Kellyville and Depew	22,014	616,392
North Bristow	3,366	94,248
East Bristow or Slick	5,914	165,592
Total	62,460	1,748,880
Pawnee County:		
Cleveland	4,474	125,272
Keystone	1,097	30,716
Jennings	5,450	152,600
Otoe or Watchorn	2,833	79,324
Masham	170	4,760
Total	14,024	392,672
Payne County:		
Yale, Quay and Ingalls	6,614	185,192
North Cushing or Marsh Pool	1,109	31,052
Deep Rock	2,549	71,372
Total	10,272	287,616
Lincoln County:		
Stroud	2,645	74,060
Davenport	23,344	653,632
Kendrick	1,823	51,044
Total	27,812	778,736
Kay, Grant and Noble Counties:		
Blackwell	1,804	50,512
Deer Creek	83	2,324
Ponca City	784	21,952
Mervine	325	9,100
Braman	9,837	275,436
Hubbard	1,984	55,552
Thomas	9,932	278,096
Tonkawa	43,657	1,222,396
Billings	337	9,436
Miscellaneous	172	4,816
Total	66,931	1,874,068
Garfield County:		
Garber	23,786	666,008
Carter County:		
Healdton	15,137	423,836
Hewitt	12,245	342,860
Graham	9,457	264,796
Fox	2,295	64,280
Brock	1,744	48,832
Tussy or Sholem Alechem	2,026	56,728
Total	42,904	1,201,312
Stephens-Cotton Counties:		
Loco-Milroy	2,391	66,948
Comanche	1,191	33,348
Duncan	6,452	180,656
Walters	930	26,040
Kilgore	266	7,448
Knox (2-2n-5w)	365	10,220
Total	11,595	324,660
Jefferson County:		
Hambro	3,080	86,240
Caddo County:		
Cement	1,582	44,296
Garvin County:		
Robberson	2,762	77,336
Beckham County:		
Sayre	101	2,828



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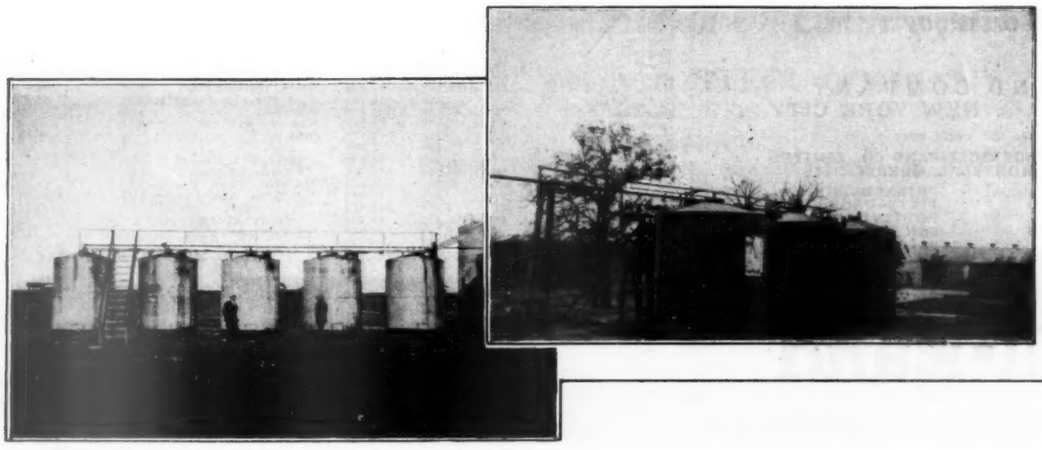

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71-SOE

Pontotoc County:			
Lloyd		125	3,500
Allen		270	7,560
Frances		23	644
Total		418	11,704
Pottawatomie County:			
Maud		30	840
Marshall County:			
Madill		112	2,856
Total Feb.		442,415	12,387,620
Total Jan.		441,123	13,674,813
Difference		1,292	2,287,193

NORTH AND CENTRAL TEXAS
Daily Average and Total Monthly Production in February

North Texas:	Daily Av.	Mo. Prod.
Burkburnett	12,633	353,724
Electra	16,911	473,508
Iowa Park-K.M.A.	4,387	122,836
Archer County	32,332	905,296
Clay County	442	12,376
Wilbarger County	13,242	370,776
Montague County	1,428	39,984
Baylor County	244	6,832
Total	81,619	2,285,332
Central Texas:		
Clear Fork	5,277	147,756
Breckenridge	6,068	169,904
Caddo	3,669	102,732
Ranger-Eastland	5,472	153,216
Rising Star	112	3,136
Sipe Springs	157	4,396
Desdemona	1,846	51,660
Pioneer	634	17,752
Brown County	3,451	96,628
Callahan County	3,995	111,860
Coleman County	327	9,156
Throckmorton County	229	6,412
Jack County	71	1,988
Palo Pinto County	912	25,536
Shackelford	2,584	72,352
Reagan County (Big Lake)	29,492	825,776
Mitchell County	2,930	82,040
Upton County	33	924
Scurry County	50	1,400
Crockett County	126	3,528
Total	67,434	1,888,152
Panhandle:		
Carson County	1,831	51,268
Hutchinson County	3,336	93,408
Wheeler	112	3,136
Gray	141	3,948
Potter	18	504
Total	5,438	152,264
East Central Texas:		
Mexia	14,021	392,588
Powell	33,522	938,616
Currie	985	27,580
Richland	2,059	57,652
Wortham	11,554	323,512
Total	62,141	1,739,948
Total Feb.	216,632	6,065,696
Total Jan.	221,827	6,876,637
Difference	5,195	810,941

NORTH LOUISIANA
Daily Average and Total Monthly Production in February

	Daily Av.	Mo. Prod.
Bellevue	2,349	65,772
Caddo light	8,880	248,640
Caddo heavy	2,302	64,456
Cotton Valley	8,237	230,636
DeSoto and Red River	4,731	132,468
Elm Grove	587	16,436
Haynesville	10,609	297,052
Homer	5,836	163,408
Urania	2,469	69,132
Total Feb.	46,000	1,288,000
Total Jan.	43,348	1,343,855
Difference	2,652	55,855

ARKANSAS
Daily Average and Total Monthly Production in February

Smackover heavy	139,965	3,919,020
Smackover light	18,991	531,748
El Dorado	7,530	210,840
Nevada	1,646	46,088
Stephens	1,550	43,400
Lisbon	205	5,740
Total Feb.	169,887	4,756,836
Total Jan.	177,084	5,489,620
Decrease	7,197	732,784

GULF COAST (TEXAS-LOUISIANA)
Daily Average and Total Monthly Production in February

District—	Wells	Da. Av.	Mo. Prod.
Boling	4	5,640	157,920
Batson	428	1,222	34,216
Blue Ridge	16	844	23,632
Barber Hill	3	90	2,520
Big Creek	19	1,501	42,028
Damon Mound	50	762	21,336
Dayton	4	51	1,428
Edgerly (La.)	52	359	10,052
Goose Creek	255	9,812	274,736
Humble	297	5,600	156,800
Hull	263	19,187	537,236
High Island	7	588	16,464
Jennings (La.)	53	942	26,376
Lockport (La.)	3	2,697	75,516
Markham	15	75	2,100
Nash	1	100	2,800
Orchard	1	469	13,132
Orange	187	13,294	372,232
Pierce Jct.	12	1,422	39,816
Piedras Pintas	1	430	12,040
Spindletop	168	5,184	145,152
Saratoga	417	1,439	40,292
Sour Lake	436	5,084	142,352
South Liberty	112	7,604	212,912
Vinton (La.)	131	6,500	182,000
Welsh (La.)	4	80	2,240
West Columbia	117	9,434	264,152
Miscellaneous	14	326	9,128
Total Feb.	3,073	100,736	2,820,608
Total Jan.	...	97,867	3,033,877
Difference	...	2,869	213,269

SOUTHWEST TEXAS
Daily Average and Total Monthly Production in February

Field—	Wells	Da. Av.	Mo. Prod.
Luling	464	21,075	590,090
Laredo	*408	3,456	98,768
Somerset	236	2,294	65,242
Callihan	20	241	4,748
Rockdale-Minerva	243	927	25,956
Jim Hogg County	*79	3,621	101,388
Lockhart	266	7,626	212,528
Total Feb.	1,706	39,240	1,098,720
Total Jan.	...	39,787	1,243,397
Difference	...	547	144,677

*Gas wells not included.

BETTER UTILIZATION OF GAS URGED BY ENGINEER

(Continued from Page 70)

doing this work the efficiency actually obtained is 50.32 ÷ 1,500, or 3.35 per cent, which it must be admitted is very low.

The question then arises as to whether it is possible to obtain an efficiency of 41.9 per cent, which can be answered in the affirmative. It is probable, however, that sizes of well casings and other conditions in the oil field would make it practicable to be satisfied with one-half of this efficiency. The principles of air lift operations are applicable to flowing wells, and many wells operated by air lift can be cited where efficiencies of 10 to 20 per cent have been obtained. Where air lift equipment is properly designed and installed, efficiencies of 25 to 50 per cent are not at all difficult to attain. Why then should we be content with an efficiency of 3.35 per cent in the operation of flowing wells, when efficiencies of 25 to 50 per cent are possible to obtain? In my opinion it is well within the reach of oil operations to obtain double the recovery under flowing conditions that is now being obtained. Increasing the efficiency will not only increase the recovery but will also lower the cost per barrel since there is little question that a flowing well costs much less to operate than a well that has been put on the pump, both by reason of the larger production obtained and by elimination of the extra costs attendant on pumping operations.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended March 20 totaled 1,566,000 barrels, a daily average of 223,714 bbls., compared with 1,820,000 bbls., a daily average of 260,000 bbls. for the week ended March 13, and a daily average of 224,214 bbls. for the four weeks ended March 20.

At Atlantic Coast Ports—	
Baltimore	284,000
New York	534,000
Philadelphia	97,000
Others	203,000
Total	1,118,000
Daily average	159,714
At Gulf Coast Ports—	
Galveston district	111,000
New Orleans and Baton Rouge	290,000
Tampa	47,000
Total	448,000
Daily average	64,000
At All United States Ports—	
Total	1,566,000
Daily average	223,714
Daily average four weeks ended	224,214

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended March 20 totaled 671,000 bbls., a daily average of 95,857 bbls., against 847,000 bbls., a daily average of 121,000 bbls. for the week ended March 13, and a daily average of 82,857 bbls. for the four weeks ended March 20.

At Atlantic Coast Ports—	
Baltimore	75,000
New York	546,000
Others	50,000
Total	671,000
Daily average	95,857
A Gulf Coast Ports—None.	
Total Atlantic and Gulf Coast ports	671,000
Daily average	95,857
Daily average four weeks ended	82,857

USING DIESEL EXHAUST

Discovery of new ways for utilizing the exhaust gases of Diesel engines has added to the economies made possible by the adoption of this type of ship propulsion. On a number of the newer oil-engined vessels arrangements have been made either to pass the exhaust gases around a boiler to raise steam for auxiliary purposes or to heat water for ships' pusposes.

New York Oil Co. Pipe Line At Casper Wyoming

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Republic 10″ wrought steel pipe was used in the newly constructed line of the New York Oil Company, from Sand Draw to Dutton Basin in the inter-mountain Wyoming district. In its issue of Oct. 18, 1925, the Casper Herald says, "A network of Republic steel pipe criss-crosses the State of Wyoming."

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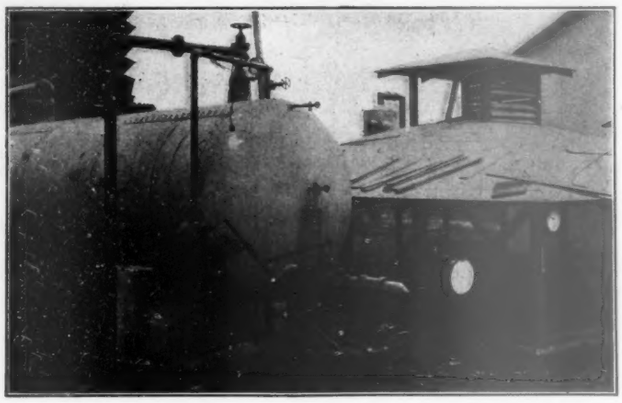

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THE COMPASS OF INDUSTRY

SUPREME COURT DECISION QUOTED IN DISCUSSION OF CONSERVATION

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 27.—In discussing the question of the constitutionality of the community development of oil structures, a case decided by the Supreme Court of the United States, December 13, 1920, is under consideration as having a particularly interesting bearing on that subject. By analogy this case in the opinion of some seems to uphold the rights of states to enforce community development of oil structures. It is known as Walls, Attorney General of the State of Wyoming vs. the Midland Carbon Co. and the Occidental Oil & Gas Co., 254 U. S. 300.

It is not improbable that this case may be depended upon in the advocacy of enactment of state or Federal law to uphold a policy of conservation of oil by enforcing community development of oil structures. In this case the Midland Carbon Co. and the Occidental Oil & Gas Co. established plants for the production of carbon black from natural gas without utilizing any other product of the gas which was dissipated in the air. The State of Wyoming protested against this operation which it declared wasteful and in defiance of all ideas of conservation, and enacted a law, the declared purpose of which was "the conservation of natural gas." Section 1 of that act provided as follows:

"The use, consumption or burning of natural gas, taken or drawn from any natural gas well or wells, or borings from which natural gas is produced, for the products where such natural gas is burned or consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes, is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas well or source of supply is located within 10 miles of any incorporated town or industrial plant."

The decision was rendered by Justice McKenna. Chief Justice White, Justice Van Devanter and Justice McReynolds dissented.

Stated broadly, the ground of contention against the act was that it transcended the police power of the state, its purpose and effect being not to regulate and conserve natural gas but to prohibit its use and make a discrimination between owners having equal rights. The restriction of this legislation to wells within 10 miles of a town in no way strengthened the constitutionality of the act but was believed to weaken it by introducing the element of class legislation.

Prior to the enactment of this statute, the Midland Co. had expended $375,000 on a plant for the manufacture of carbon black. From the gas necessary to make 13,000 pounds of carbon black daily there was first extracted approximately 1,600 gallons per day of high gravity gasoline.

The Occidental Oil & Gas Co. owned the land upon which were located the gas wells constituting the principal source of supply to the plant and carbon factory of the Midland Co. The Occidental Co. for these purposes constructed a pipe line at a cost of $65,000 and purchased lands at a sum exceeding $30,000.

Justice McKenna's View

On the other hand, it was alleged that within three years all of these gas wells would be depleted were this operation to continue, whereas the gas used for domestic purposes the town of Lovell and Cowley together with all of its industrial plants would be afforded a supply of gas for a period of 30 years. The act, it was pointed out by Justice McKenna, did not prohibit the use of natural gas absolutely, but declared it to be a "wasteful and extravagant use of the gas when it is burned or consumed without the heat therein contained being fully and actually applied and utilized for either manufacturing or domestic purposes."

Justice McKenna proceeds as follows:

"But not even that unlimitedly, but only when the 'gas well or source of supply is located within 10 miles of any incorporated town or industrial plant.' Such is the prohibition upon the user or consumer. There is prohibition upon the owner or lessee or wells within the designated distance from a town or industrial plant to sell or dispose of the gas except under the specified conditions 'for the purpose of manufacturing carbon or other resultant products.'

"There are two elements, therefore, to be considered: (1) The distance of the wells from an incorporated town or industrial plant; (2) the element of heat utilization for manufacturing or domestic purposes. These elements are the determining ones in the accusations against the law. The first is the basis of the discrimination charged against it; the second is the basis of the charge that the law deprives the companies of their property by the ruin of their business and capital investments, and impairs the obligations of pre-existing contracts."

Relation of Rights

Justice McKenna cited Bacon vs. Walker, 204 U. S. 312, in which the Supreme Court decided "in substance that the power of regulation existing, the imposition of some limit to a right when its exercise would impinge upon the equal right of another was the exercise of legislative power, and the circumstances which induced it could not be pronounced illegal 'on surmise or on the barren letter of the statute.' * * Pertinent cases were cited and the exclusion from grazing within 2 miles of the possessory claim of another was decided to be illegal * * The mere distance expressed nothing."

"The case and those it cites are authority for the position that a state may consider the relation of rights, and in the interest of the community, limit one that others may be enjoyed," said Mr. McKenna.

He also cited Ohio Oil Co. vs. Indiana 177 U. S. 190, where the state prohibited one having possession or control of any natural gas or oil well to permit the flow of gas or oil from any such well to escape into the open air for a longer period than two days after the gas or oil had been struck. From the standpoint of the law to do so was a waste of gas. The oil company set up a right against the statute based upon the asserted or implied postulate that the owner of the land owned all beneath the surface and all that could be brought to the surface within the lines of the land.

"The postulate was rejected," said Mr. McKenna, "upon the ground of the nature of the gas, the capability of its flow from place to place, the common right to domestic and industrial use of it, and the power of the state to regulate and conserve such right."

Ruling on Possession

"We said," added Mr. McKenna, "citing a case, 'possession of the land is not necessarily possession of the gas' and again on the authority of cases, 'that the property of the owner of lands in oil and gas is not absolute until it is absolutely in his grasp, and brought to the surface.' It was decided, however, that before that event occurs, indeed, in prevention of it, the state may interpose its power to prevent a waste or disproportionate use of either oil or gas by a particular owner in order to conserve the equal rights of other owners and advance the public interest. And in support of this power of regulation a similarity between natural gas and other subsurface minerals was rejected. 'True it is,' it was said, 'oil and gas, like other minerals, are situated beneath the surface of the earth; but, ex-

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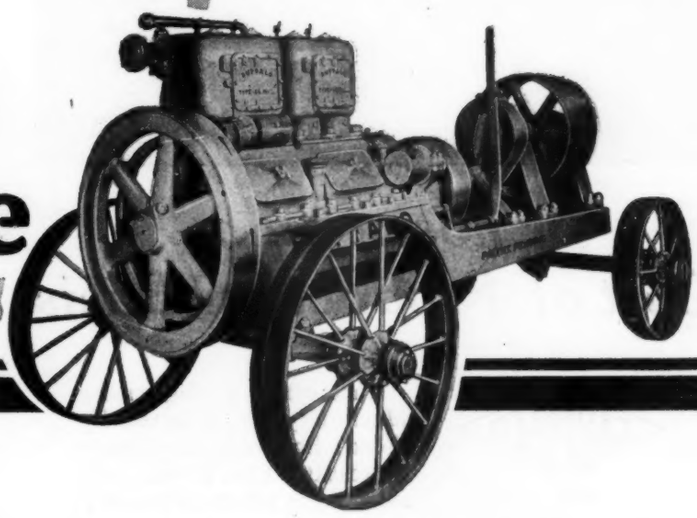

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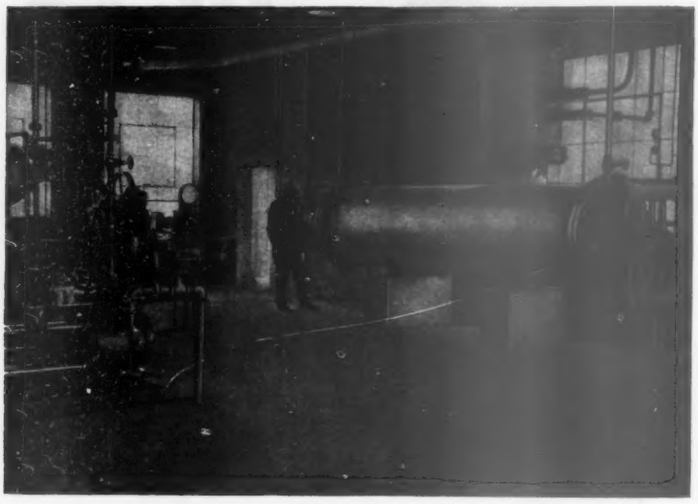

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cept for this point of similarity, in many other respects they greatly differ. They have no fixed situs under a particular portion of the earth's surface within the area where they obtain. They have the power, as it were, of self transmission.' Necessarily, therefore, it was adjudged that their use by one owner of the surface affected the use of other owners, and an excessive use by one diminished the use by others, and a similarity of other minerals as we have seen was rejected and the analogy between oil and gas and animals ferae naturae was declared. It was hence decided that the power of the state 'can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment by them of their privilege to reduce to possession, and to reach the like end by preventing waste.'"

Determining Condition

Again the court said:

"The determining consideration is the power of the state over, and its regulation of, a property in which others besides the companies may have rights, and in which the state has an interest to adjust and preserve, natural gas being one of the resources of the state."

Again citing the Lindsley case, the court said:

"The case at bar is, we think, within that principle; in other words, the power is exerted to prohibit an extravagant or wasteful or disproportionate use of the natural gas of the state * * * and we do not think that the state was required by the constitution of the United States to stand idly by while these resources were disproportionately used, or used in such a way that tended to their depletion, having no power of interference.

"* * * as the State of Indiana could prevent the exhaustive use of gas in the production of oil and as the State of New York could prevent the owner of land from using artificial means to obtain the carbonated waters under his land. The State of Wyoming has the same power to prevent the use of natural gas in the production of carbon black, the tendency of which is (it may be the inevitable effect of which is) the exhaustion of the supply of natural gas and the consequent detriment of other uses.

"To the contention that the statute is not one of conservation because carbon black factories are permitted if 10 miles distant from a town or industrial plant the immediate answer is that it is for the state to determine not only if any conservation is necessary but the degree of it; and certainly the companies cannot complain if the state has not exerted its full power."

In the above case the court below was reversed and the case was remanded to the District Court for further proceedings in conformity to this opinion.

Anyone may review the foregoing summary of this opinion by the Supreme Court of the United States and form some opinion whether from analogy that same court would apply the same principles to an oil structure when some owners of which or a state would contend that competitive drilling would prove wasteful and that only by developing the structure as a unit, or on a community plan, could the maximum quantity of the oil be obtained, not only for the benefit of individual owners but for the people of the state at large.

One thing is certain, however, and that is that this opinion of the Supreme Court of the United States will play an active part in future conservation plans that will call for legislation.

EASTERN FIELDS

(Continued from Page 48)

Carnegie Natural Gas Co. has the rig completed for a test on the Newton Washburn farm. In the same district, the Hope Natural Gas Co. has the rig completed for a second test on the L. Bee farm. In Birch district, Braxton County, the Ohio Fuel Oil Co. has started to drill deeper its second test on the W. E. Campbell farm.

Gilmer County

In DeKalb district, Gilmer County, the Pittsburgh & West Virginia Gas Co. has made a location on the Sarah A. Vannoy farm. In the same district, Troy Zinn & Co. have made a location on the Asa Hardman farm. In Center district, McCall & Co. are rigging up on the Floyd Moore farm. In Coal district, Harrison County, the Norwood Gas Co. is running the 6⅝-inch casing on the Continental Coal Co.'s property. In McClelland district, Doddridge County, J. H. Pence is rigging up on the Cora Smith farm. In the same district, Trainer & Ash are moving tools to a location on the Daniel Bates farm. In Union district, Tyler County, the Swisher Oil Co. has started to drill on the G. W. Katzebue farm.

Lincoln County Tests

In Union district, Lincoln County, the Columbia Gas & Electric Co. has the rig completed for a test on the Richard Lovejoy farm. In Carroll district, the Sovereign Gas Co. has started to drill on the Regina Thompson farm. In the same district, the Transylvania Petroleum Co. is due in the Big Injun sand on the L. R. Sweetland farm. In Sheridan district, the same company has started to drill a second test on the E. M. Adkins farm.

In Union district, Pleasants County, the Big Bend Oil Co. has started to drill on the F. & A. Kerns farm. In Center district, Calhoun County, the Hope Natural Gas Co. has started to drill on the Guy Gainer farm. In Sheridan district, the Richtor Oil Co. has the road completed to a location on the William Cooper farm. In Skin Creek district, Lewis County, the Hope Natural Gas Co. is building the rig to drill deeper an old well on the Edgar Davidson farm.

On Rush Run, Smithfield district, Roane County, G. L. Cabot has started to drill a test on the F. F. Harless farm. On the same stream and same district, Mr. Cabot has started to drill on the Clark Butcher farm. In Sherman district, Calhoun County, the Hope Construction & Refining Co. has a rig completed on the Okey Parsons farm. On Leading Creek, Freemans Creek district, Lewis County, the Manufacturers Light & Heat Co. has a rig completed on the Thomas Fahey farm. On Big Pawpaw Creek, Pawpaw district, Marion County, the Owens Bottle & Machine Co. has a rig up on the Lee Yost farm. In Union district, Clay County, the Empire Petroleum Co. has the rig completed for a test on the J. H. Samples farm, 2,500 feet southwest of the same company's second test on the J. W. Moore farm.

In Central district, Doddridge County, Nay & Kintzer are hauling rig timbers to a second location on the Radabaugh-Fuccy farm. In the same district, the Hope Construction & Refining Co. has started to drill on the Kate McCauley farm. The same company has started to drill on the Lucinda Williams farm. In West Union district, the Manufacturers Light & Heat Co. has shut down at 2,750 feet for orders on the L. L. Shinn farm. In the same district, the Columbia Carbon Co. has started to drill No. 12 on the Lewis Maxwell farm.

Clay County

Quite a little test work is starting in Clay County. In Union district, the Chalmers Oil & Gas Co. has started to drill a test on the S. W. Samples farm. In the same district, the United Fuel Gas Co. is drilling a test on the Guy Boggs farm. The Eastern Carbon Black Co. has a producer on the Williams heirs farm, 700 feet south.

Southwest Pennsylvania

The southwest Pennsylvania fields completed only a few wells and all in Greene County. In all other southwest counties there is very little in the way of starting new work. In Aleppo Township the Manufacturers Light & Heat Co. has drilled its test on the Mack Weimer farm through the Bayard sand. It is a gasser good for 300,000 feet and showing a little oil in the Gordon sand.

In Washington Township, the Carnegie Natural Gas Co. completed a test on the James S. Moore farm, dry in all sands. In Springhill Township, the Peoples Natural Gas Co. drilled deeper a well on the John Estill farm. It is a gasser in the fifth sand.

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INFLUENCE OF SUBMERGENCE ON EFFICIENCY OF PLUNGER PUMPS

By L. C. Uren†, S. B. Sargent‡ and V. J. Collins‡, Berkeley, Calif.*

Among the several variables which determine the efficiency of the type of plunger pump commonly used in oil well service, the submergence of the pump below the fluid surface in the well plays an important part. When insufficiently submerged, the pump will deliver less than half of its theoretical plunger deplacement. In many instances, it seems probable that wells yield only half of what they are capable of producing, because the operator fails to maintain a suitable submergence on the pump.

This paper describes the conditions, within and surrounding the pump while in operation in the well, which influence the effect of submergence on pumping efficiency; it presents the results of an experimental study designed to disclose the quantitative effect of submergence on pump efficiency; and offers conclusions which indicate the approximate submergence desirable and emphasize the necessity for a knowledge of operating fluid levels within pumping wells.

Unless immersed in the well fluid, the plunger pump is dependent for its supply of oil upon the suction effect of the ascending plunger, which is inadequate to draw a supply of oil sufficient to fill the working barrel, through the restricted orifices at the standing valve and lower plunger nut. The static head developed within the oil at the level of the standing valve, by ample submergence, is needed. The amount of submergence necessary for a given pump efficiency will depend on the viscosity of the oil, the size and design of the standing valve and its seat, and the rate of plunger travel. The latter factor is a product of the length and speed of pumping stroke given the plunger. The depth of the pump below the level at which oil is delivered at the surface, and the presence of natural gas with oil, are related factors, in that they influence the suction effect of the pump and the effective plunger stroke.

Standing Valve and its Seat

The usual standing valve consists of an accurately ground sphere of hardened tool steel, supported on an annular, beveled-edged steel seat. The standing valve body, which supports the valve seat, is conical at its lower end and is wedged into a conical recess in the footpiece of the working barrel. A winged crown, screwed to the top of the valve body, confines the spherical valve to the space immediately above its seat. The usual standing valve assembly is illustrated in Fig. 1, in which the parts are drawn to scale as determined by careful measure-

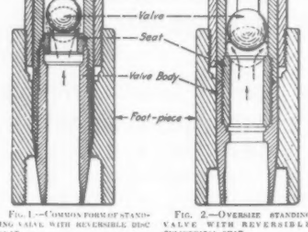

FIG. 1.—COMMON FORM OF STANDING VALVE WITH REVERSIBLE DISC SEAT.

FIG. 2.—OVERSIZE STANDING VALVE WITH REVERSIBLE CYLINDRICAL SEAT.

ments on a well known and widely used make and style of plunger pump. The valve is shown in space above its seat, as it would be during the flow of oil into the working barrel. The circle of broken lines indicates the position of the spherical valve when seated. The oil is required to change its direction of flow abruptly when it strikes the valve, and the valve seat also offers a constriction in the oil channel. These conditions are conducive to turbulence, and offer considerable resistance to the flow of oil.

Pump manufacturers recently have given attention to the importance of design in reducing frictional resistance at the standing valve, and many now recommend "oversize" standing valves, with larger seats and fewer and smaller recesses about the valve. Figure 2 illustrates a typical oversize valve which offers considerable less resistance to oil flow than the common type of standing valve shown in Figure 1.

Effect of Rate of Plunger Travel and Viscosity

The resistance offered by the standing valve to upward passage of oil into the working barrel is dependent on the rate of plunger travel. As the plunger speed increases, the rate of flow of the oil through the standing valve, and the resistance to flow offered by the valve, also increase. Hence, as the plunger speed increases, greater submergence is necessary to overcome the resistance offered by the valve and cause the oil to fill the space evacuated by the rising plunger. If the submergence is inadequate, only a part of the needed oil will enter the working barrel. For a given submergence, therefore, there is a definite rate of plunger travel which may not be exceeded without loss of efficiency; and conversely, for a given rate of plunger travel, there is a certain minimum submergence necessary to fill the working barrel at each stroke and permit the pump to operate without loss of volumetric efficiency. The relationship between these factors varies with the size and design of the standing valve. The submergence varies also with the viscosity of the oil. Increased viscosity means greater resistance to flow through the standing valve; hence the more viscous oils require greater submergence of the pump for efficient operation.

Effect of Oil Retained Between Valves

When the pump completes its down stroke, the oil below the working valve is temporarily at rest. On the up stroke, as the standing valve is raised, the inertia of this oil must be overcome and the oil accelerated from rest until it attains the upward velocity of the plunger. The entire mass of oil retained within the working barrel on completion of the down stroke, as well as the column of oil below the standing valve above the oil inlet of the gas anchor, must be accelerated. With a 2-inch pump operated by 38 22¾-inch strokes per minute, the time consumed in making one up stroke is only 0.79 seconds, and the necessary acceleration within the plunger is 2.42 feet per second. The restrictions at the seat of the standing valve and at the plunger nut surrounding the garbutt rod necessitate a much more rapid acceleration at these points. Approximate computations indicate that to impart this upward acceleration to the oil remaining in a 4-foot working barrel, 1¾ inches in internal diameter, using a 22¾-inch stroke, requires a static pressure of 9.45 pounds per square inch at the standing valve; which is equivalent to about 23.6 feet of oil head for oil of 0.94 specific gravity.

To reduce losses of static head in accelerating oil left between the valves of the pump at the conclusion of the down stroke, the two valves should be as near together as possible. Maximum efficiency in this respect can be secured by dispensing with the garbutt rod and placing the working valve in the lower end of the plunger. The plunger should be operated in the working barrel in such a position that the two valves are as near together at the conclusion of the down stroke as is possible, without permitting the lower end of the plunger to strike the standing valve crown. The gas anchor may be dispensed with if ample submergence is provided, but if it is needed, it should be as short as consistent with proper exclusion of free gas from the pump.

Effect of Gas Retained Between Valves

On the up stroke of the plunger, pressure

†Associated Professor of Petroleum Engineering, University of California. ‡Petroleum students, University of California.

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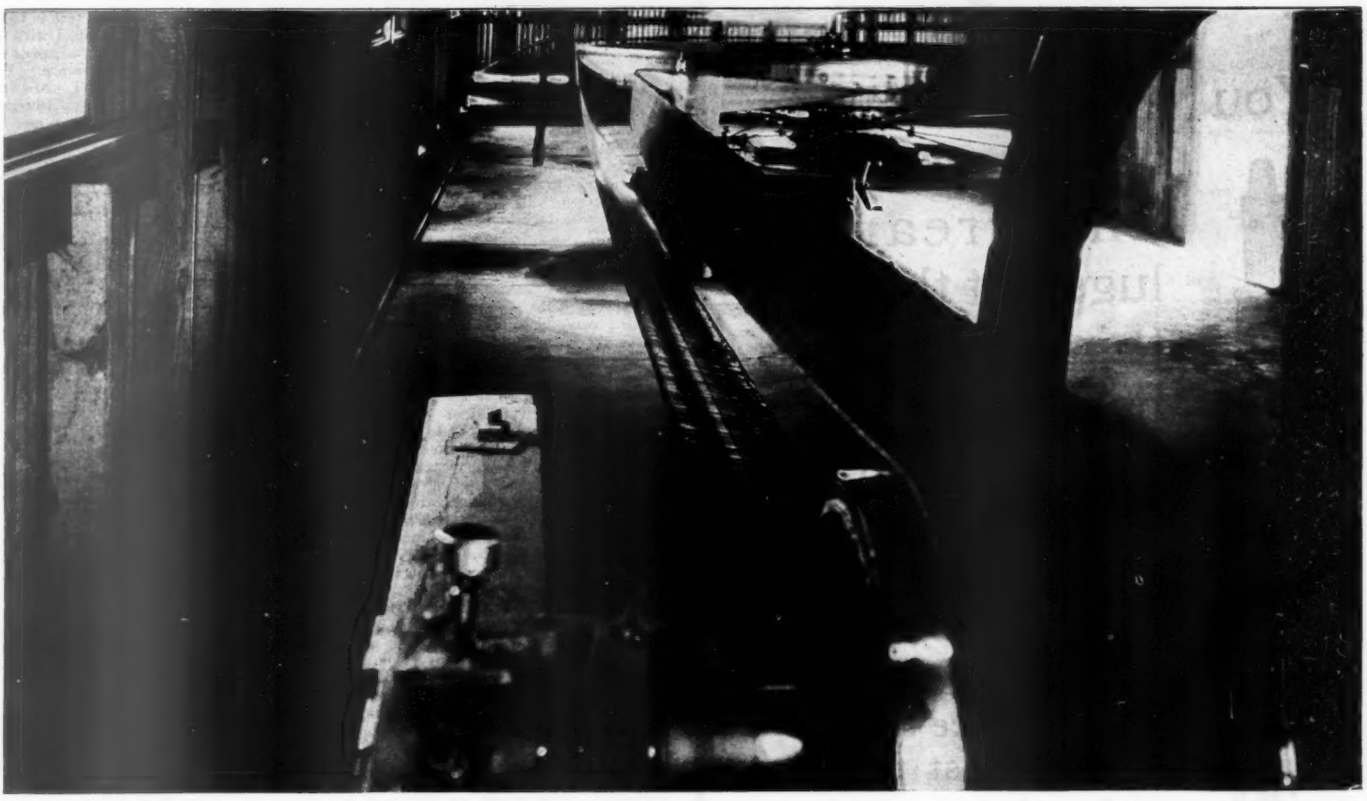

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is reduced within the working barrel and oil enters. For the latter part of the plunger stroke, the pressure within must necessarily be less than in the oil outside of the working barrel. Reduction of pressure and turbulence as the oil entering the pump passes the standing valve releases gas which has been held in solution under the higher pressure. This gas remains in the oil in occluded form, but tends to rise to the space immediately below the working valve.

On the down stroke of the plunger, the oil within the working barrel is subjected to the full pressure of the column of oil in the tubing extending to the surface. In a well 3,000 feet deep, this pressure, for oil of 0.90 specific gravity, amounts to 1,170 pounds, or about 80 atmospheres. On the down stroke of the plunger, the gas present in the working barrel must be compressed to the pressure in the tubing above the working valve before the latter can open. Gas compression thus occupies a portion of the down stroke of the plunger, and the effective stroke of the plunger in displacing oil is reduced in proportion to the amount of free gas present.

As only a portion of the oil within the working barrel is displaced by the plunger during its downward stroke, the space between the standing valve and the working valve being left filled with fluid, on the succeeding up stroke of the plunger, occluded gas left within this oil must be expanded to the pressure of the oil below the standing valve before the latter can open. In a 3,000-foot well, where this gas has been subjected to 80 atmospheres pressure, the gas must be expanded to 80 times its compressed volume before a suction effect is developed on the oil below the standing valve. Even so small a volume as one cubic inch of gas between the two valves, in expanding to 80 times its compressed volume, occupies about 13 inches of the upward travel of the plunger in a working barrel 2¾ inches in internal diameter. Because of this expansive effect of gas, which is always present in petroleum, it is probable that the plunger pump seldom develops an upward suctional pull of any consequence on the oil below the standing valve; the oil, therefore, that enters the working barrel does so chiefly because of the static pressure developed by submergence of the pump.

It is apparent that it is important to maintain a submergence on the pump in keeping with the absolute values of the variables involved; otherwise the pump cannot be expected to deliver its maximum volume of oil. Furthermore, since several factors are involved, it is not a simple matter to select the combination of variables that will give the most efficient result. The problem is complicated by the fact that the operator in the field usually does not know the fluid level in his well while the pumps are at work, and ordinarily has no convenient means of determining it. He can only estimate the effect of variation in plunger speed by trial and by frequent gaging of the fluid delivered by the pump at the surface. The actual production, however, may be influenced by the presence of gas within the pump, by mechanical inefficiencies and other variables difficult to measure and control.

Effect of Submergence on Pump Efficiency

In an effort to secure a reliable measure of the effect of variation in submergence on plunger pump efficiency, the authors have conducted a series of laboratory tests, under conditions that could be accurately determined and closely controlled. The results indicate that the submergence maintained on the pump has an important influence on its efficiency, and that the losses sustained with insufficient submergence are so great as to justify greater attention being given this factor by oil producers.

Method of Making Tests

In making a test, the desired fluid level of oil in the standpipe is secured and proper adjustments are made to give the pump the desired speed and length of stroke. The pump is then started, gradually filling the lead line until it overflows into the main storage tank. After the lead line is full of oil, and the oil flowing into the standpipe from the storage tank has been adjusted to maintain the desired fluid level, the valve controlling the delivery of oil from the pump into the main storage tank is closed, and that admitting oil to the gage tank is opened. The capacity of the gage tank, up to a certain level, is accurately known, and the time necessary for it to fill is recorded. The delivery capacity of the pump under the prescribed conditions is thus determined. Successive tests with the same adjustments check within a few per cent.

When a high submergence test is to be made, the pressure tank is filled with oil and the pressure regulator adjusted to provide the desired air pressure. The standpipe is kept full of oil while the pump is filling the lead line, as described in the preceding paragraph. When oil overflows into the storage tank, the flow to the standpipe is cut off and the valve permitting oil to flow from the pressure tank to the standpipe is opened. After a few minutes have elapsed to permit the pump to adapt itself to the changed pressure conditions, measurements of the rate of oil delivery is made.

The graphs of Figures 3 and 4 present the data secured by a series of tests. Figure 3 presents the primary data for five different series of tests in each of

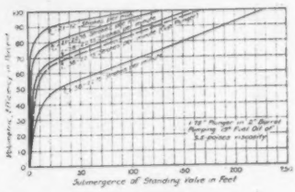

Fig. 3 — Graphs showing variation of volumetric efficiency of a 2-inch plunger pump with submergence.

which the speed and length of stroke of the pump were kept constant, while the submergence was varied to secure points on the curves shown. In four of the tests, the pump was equipped with a steel plunger and ½-inch garbutt rod, but in the fifth, the results of which are shown as a broken-lined curve in Figure 3, the steel plunger and garbutt rod were removed and a short plunger fitted with leather cups was substituted. This plunger gave quite a different result, for the same rate of plunger travel, from that with the steel plunger. The lower submergence required with the cup type of plunger is clearly disclosed in these tests, and is undoubtedly due to the smaller amount of oil left within the pump on completion of the down stroke of the plunger; a condition which, as previously explained, leads to smaller losses in overcoming the oil inertia. The graphs of Figure 4 are developed from those of Figure 3; they show the volumetric efficiency possible for different submergences and rates of plunger travel

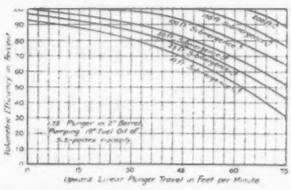

Fig. 4—Graphs showing variation of volumetric efficiency with rate of plunger travel, for varying submergence.

for the steel plunger with garbutt-rod attachment.

Conclusions Indicated by Results

The results of these tests indicate that, for the particular pump used, the volumetric efficiency falls off rapidly for submergences below 20 feet, and that with the higher plunger speeds, a submergence of 100 feet or more is necessary to secure reasonable efficiency. Though the precise position of the curves near the upper and lower limits is somewhat uncertain, due to scarcity of data at high and very low submergence, the results indicate that a submergence as

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great as 230 feet would be necessary to secure 100 per cent efficiency with an upward plunger travel of 72 feet per minute, the highest used in the tests. However, with the cup plunger and no garbutt rod, the same plunger speed requires a submergence of only 165 feet for 100 per cent volumetric efficiency. With an upward plunger travel of 40 feet per minute (21 22¾-inch strokes per minute), 100 per cent efficiency is secured with a submergence of about 130 feet. Even with the lowest speed used in the tests (21 lin. feet of upward plunger travel per minute), 100 per cent efficiency requires a submergence of about 100 feet.

In field practice, an upward linear plunger travel of from 40 to 75 feet per minute would represent average conditions for wells of moderate depth and productivity. For such speeds, the tests indicate that a submergence of from 50 to 160 feet or more must be secured if the pump efficiency is to be maintained above 80 per cent. These figures apply only to the 2-inch size of pump and heavy, viscous oil. For lighter oils and larger pumps, a lower submergence would undoubtedly give equivalent efficiencies. It is probable, also, that oversize standing valves would permit the 2-inch pump to perform at higher efficiency.

Pump Submergence and Fluid Level

On an earlier paper the senior author has shown that the fluid level maintained in a well has an important effect in determining the flow from the oil sand into the well. For every set of conditions presented in a producing oil well, there is a definite fluid level maintenance of which will result in a maximum flow from the reservoir sand. Higher or lower fluid levels will result in decreased yield. Where the pressure within the oil sand is not excessive, the fluid level that may be carried in the well above the oil sand without serious reduction in yield is but a few feet, and in many cases low pressure sands can yield their maximum flow only by maintaining fluid levels below the top of the oil sand. In such cases, with thin or even moderately thick oil sands, there will often be insufficient oil in the hole to provide proper submergence for the pump. This difficulty can be remedied by drilling wells to sufficient depth below the oil sand to provide proper submergence for the pump, and yet permit of carrying a fluid level low enough to cause maximum flow from the sand (see Figure 5.) Where edgewater occurs in the bottom of the oil sand, however, or in the

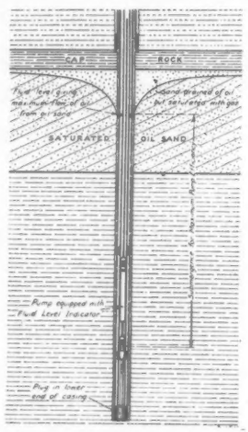


Fig. 5—Sketch illustrating location of oil-well pump below an oil sand, providing ample submergence for pump without sacrificing oil production by maintaining a high fluid level.

formations immediately beneath, a sump of this character may be difficult or even impossible to maintain.

The necessity for accurate knowledge of the position of the fluid level in the well while the pump is at work is apparent, both in assuring maximum recovery of oil from the sand, and in providing proper submergence for the pump. Unless a proper fluid level is maintained, and unless the pump operates with reasonable efficiency, the well will yield less oil than it is capable of producing. Oil producers generally have no knowledge of the operating fluid levels in their pumping wells, and have developed no satisfactory means of securing such data. In the paper referred to, the writer has described a fluid-level indicator which may be attached to the pump, and which at all times would show its submergence; and if the location of the pump in the well is known, the position of the fluid level in the well may also be readily determined therefrom.

Conclusions

From the theoretical discussion and experimental evidence presented in this paper, the following conclusions may be drawn:

1. The efficiency of the oil well plunger pump is dependent to an important degree upon the submergence provided.

2. Ample submergence must be secured in order to provide sufficient static pressure to force the oil through the restrictions interposed in the oil path at the standing valve and at the plunger nut surrounding the garbutt rod. These restrictions should be no smaller than is structurally necessary, in order to reduce resistance to oil flow to a minimum.

3. A part of the static pressure developed below the standing valve by submerging the pump is dissipated in overcoming the inertia and in providing upward acceleration for oil left between the pump valves at the conclusion of the down stroke of the plunger, and of oil below the standing valve in the gas anchor above the oil inlet. This loss in effective static pressure can be reduced to a minimum by dispensing with the garbutt rod and placing the working valve at the lower end of the plunger. The valves should be as near together at the conclusion of the down stroke of the plunger as is consistent with security in avoiding striking of the lower end of the plunger on the standing valve crown. Gas anchors should be short, and oil inlets should be as near the sanding valve as is consistent with proper gas exclusion.

4. Because of the presence of gas in solution in the oil, which tends to escape from solution under the reduced pressure conditions above the standing valve, the effective length of stroke of the plunger is reduced, and the suction effect of the rising plunger is largely nullified. The influx of oil through the standing valve is therefore chiefly dependent on static pressure developed by submergence.

5. For a 2-inch plunger pump, under varying conditions of length and speed of stroke, pumping a heavy, viscous oil, experimental evidence is offered which indicates that a submergence of from 100 to 230 feet is necessary for 100 per cent volumetric efficiency. With a lower submergence, the efficiency falls off rapidly, and for many tests, comparable with field conditions, volumetric efficiencies as low as 50 to 60 per cent were obtained.

6. Proper pump submergence would, in many cases, require maintenaace of fluid levels in the wells that would seriously reduce influx of oil from the reservoir sand. As a means of avoiding this difficulty, it is proposed that pumps should be placed in sumps drilling below the production sands, unless this involves danger of water incursion.

7. To provide a basis for properly controlling both the fluid level and pump submergence in order to secure maximum efficiency in oil production, the use of a fluid level indicator, attached to the pump and showing the pump submergence at all times, is recommended.

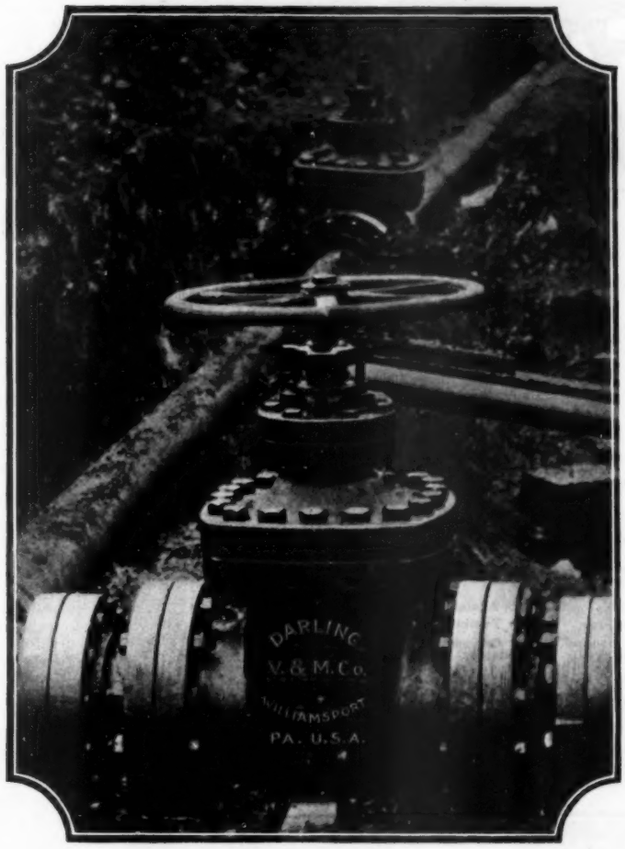
OKLAHOMA'S DEEP HORIZONS CORRELATED

(Continued from Page 60)

silicious limestone. Cementation prevents the Burgen from offering a suitable oil reservoir as evidenced by its superposition above the Arbuckle limestone in most of the many pools where the latter has been a prolific producer.

Tyner Formation

The Tyner formation as exposed is composed of green sandy shale interstratified with thin beds of sand and some



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sandy dolomitic limestone. The formation displays the same character in well cuttings with the addition of some thin beds of red shale near the middle portion which have not been observed at the outcrop. The basal portion becomes more dolomitic to the northwest of Tulsa and the entire formation appears to carry more sand and less green shale to the south.

The Tyner is the source of production in a number of scattered wells and is the principal source of production in some small pools.

"Wilcox" Sand

For a description of the physical character and microscopic analysis of this sand the reader is again referred to Trowbridge and Mortimer (Econ. Geology Vol. 20 No. 5). After making microscopic examination of complete sections of this sand from many wells the writer's observation is that the "Wilcox" sand is a much more uniform, fine grained sand than the Burgen. The characteristic of this sand, in the main, is a high percentage of fine angular grains accompanied by few large, rounded, etched grains, and more small, rounded grains. It is questionable, however, if this difference in character between "Wilcox" and Burgen can be employed as suitable criteria for identification of single samples. Many individual samples of Burgen show a predominance of fine angular sand and conversely many individual samples of "Wilcox" show a predominance of large rounded grains. The "Wilcox" and Burgen may vary laterally in this respect. In general the author's observation has been that when large rounded grains are found in the "Wilcox" sand they occur at the top of the sand as encountered in the well rather than farther into the sand body, where the sand is generally fine and angular.

The "Wilcox" sand thickens from a few feet at its northern limit to a maximum of 250 to 300 feet in the vicinity of Stroud and Henryetta. In its thickest portion it remains a remarkably pure sand of uniform character. This is the chief reason for differentiating this sand from the Tyner formation. Taff differentiated Tyner and Burgen on a basis of lithology. The author finds more abundant evidence for the differentiation of Tyner and "Wilcox" on a basis of lithology than Taff had for Tyner and Burgen.

It is the author's hope that these three formations may be eventually identified with definite members of the Simpson formation in the Arbuckle Mountains. Surprisingly few detailed sections of this formation are to be found in the literature. It is to be hoped that more detailed work of this kind will be done at the various outcrops of Simpson.

The "Wilcox" sand is so well known as an oil producing horizon that it requires no further discussion here. The author's idea of the future production from this entire series of sands may be obtained by referring to a paper entitled "Remarks on the Possibilities of Future Production From the Pre-Chattanooga Series of Northeastern Oklahoma," read before the February, 1926, meeting of A. I. M. E.

Post-"Wilcox" Simpson

The group of rocks referred to as the Post-"Wilcox" Simpson is a series of brown or gray sandy dolomitic limestones interstatified with some green shale and thin sandstone members. Wells in the vicinity of Holdenville, Okemah, Stroud and Cushing and all intervening territory encounter a series of this character having a maximum thickness near Stroud of 140 feet. This series occurs between the Viola limestone above and the "Wilcox" sand below. It is referred to the Simpson because the sand grains are rounded and etched, the shales present are green and the dolomite seems more characteristic of the Simpson than the Viola limestone. It is desirable to differentiate it from the "Wilcox" sand since it produces oil and gas in small quantities, the oil generally being much lower in gravity than that found in the "Wilcox" sand. It is also possible that water may be encountered in this horizon before reaching the "Wilcox" sand. This would lead to the abandonment of a well before a thorough test had been made. Many wells are now being abandoned in this horizon. It is a huge economic waste to spend $50,000 to $100,000 for the purpose of testing the "Wilcox" sand and fail by so small a margin.

HOWEVER

There are still some men who don't save samples,
Of ignorance and bliss they're shining examples,

AND

Poor Richard says,
Where ignorance is bliss, 'tis folly to be wise,
But such holes as this break lots o' guys.

Viola Limestone

The "white" limestone mentioned by Aurin, Clark and Trager as occurring above the "Wilcox" sand is now identified with the upper part of the Viola limestone. For a good many years it was known only as the "white lime" by the geologists of Oklahoma. However, since it has been shown to be the equivalent of the upper part of the Viola limestone, the term "white lime" is rapidly being dropped in every day usage, in favor of the term Viola.

North of Holdenville this phase of the Viola averages 30 to 50 feet in thickness. It is composed of two beds principally. The upper bed is white or grayish white in color and coarsely crystalline. The drill cuttings are generally coarse. For this reason the drillers in some parts of the country call it the "buttermilk" limestone.

The lower member of the Viola is dense and brownish gray in color sometimes resembling lithographic stone. This difference is never reported in well records and is seldom noted by any one except by those making a careful study of the samples.

Taff describes two limestone beds of this character at the top of the Tyner formation northeast of Tahlequah. This exposure was visited by a number of geologists from Tulsa in the summer of 1925 and all agreed that it was exactly the same as what had been known as the "White" limestone above the "Wilcox" sand. This identification meant that the Simpson formation had been uplifted and eroded to the northeast of the Arbuckle area previous to the deposition of the Viola limestone. This fact at once made it possible to identify the dolomitic series of sandstones which had been recently discovered to underlie the Viola in the vicinity of Stroud and Okemah. Such occurrences had never before been noted in the "Wilcox" sand and the "Wilcox" was thought to have a conformable contact with the Viola. However, when this contact was shown to be an unconformity and the Viola limestone was seen resting on the Tyner (green series) which was known to occur below the "Wilcox," then the dolomitic sands encountered at Stroud and elsewhere to the south and west were at once seen to be members of the Simpson formation higher in the section than "Wilcox," and hence the term Post-"Wilcox" Simpson.

Erroneously Classified

It may be seen from the above discussion that the beds of limestone described by Taff as the upper portion of the Tyner formation were erroneously classified with the Tyner and should have received a separate formation name. For the sake of convenience it would be well for these beds to be given a formation name even at this late day. While they are certainly members of the Viola limestone they do not represent its entire thickness but only the upper members. These particular members are so wide spread and show so little variation from an average thickness of 40 feet, while the full section of Viola limestone in the Arbuckle area, exhibits a thickness of 500 to 600 feet that it is evident they are to be distinguished from the main body of Viola. In this connection it may be pointed out that while Taff placed the Ordovician boundary at the top of the Viola, Ulrich referred the upper portion of the Viola, together with the overlying Sylvan shale, to the Richmond division of lower Silurian. A study of drill cuttings indicates that the upper coarsely crystalline member is really the equivalent of the top of

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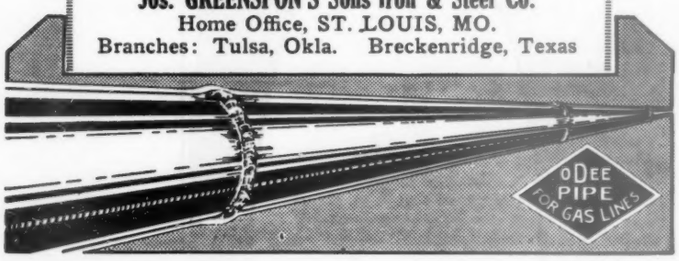

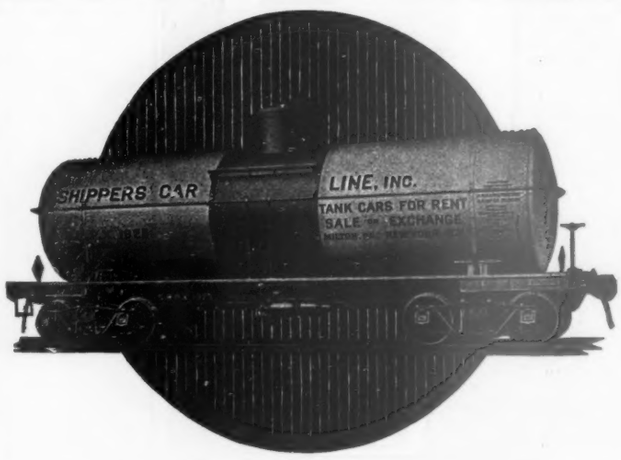

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the Viola rather than some lower member, since no other member of Viola is ever found above the coarsely crystalline member, even to the south, where the formation as a whole shows a tendency to thicken. This is in agreement with Ulrich's idea which, according to Morgan, is that the Viola varies in thickness due to the absence of the lower beds.

The gray limestone above the Tyner formation northeast of Tahlequah is approximately identical with the Fernvale limestone of the Harrison quadrangle (United States Geological Survey Geologic Atlas, Eureka Springs—Harrison Folio No. 202 by A. H. Purdue and H. D. Miser.) The Sylvan shale which occurs above this limestone in wells drilled southwest of Muskogee and westward is doubtless represented in the Harrison quadrangle by the Cason shale. The lithologic description of the Cason shows that it is very similar to the Sylvan with the exception that the Cason carries a thin (one foot) bed of conglomerate at the base which rests upon the Fernvale limestone, while no evidence of a depositional break is known at the Viola-Sylvan contact.

Fernvale Limestone

After a consideration of the above facts and ideas therefore the author is bold enough to suggest that the Richmond phase of upper Viola limestone, which occurs broadly throughout Oklahoma in the subsurface stratigraphy, be designated as the Fernvale limestone. It may be desirable that this problem receive more study by the paleontologists and stratigraphers before adopting this change. This suggestion was first made by Ulrich however in 1911. Geol. Sac. of Amer. Vol. 22, No. 3, Plate No. 7), and, in the author's opinion, a study of the subsurface stratigraphy reveals such abundant proof of the early conclusions of this peerless author of Paleozoic history that it is high time some of them be adopted. The surprising thing is that it has taken the geologists of Oklahoma 15 years to comprehend and verify the most remarkable deductions contained in Doctor Ulrich's early work notwithstanding the fact that they were being supplied continually with an abundance of subsurface data in support of these conclusions. However, the author desires to indict none more severely than himself. The only extenuating circumstance that may be offered in this connection is the fact that, unfortunately' Doctor Ulrich's valuable paper entitled "Revision of the Paleozoic System" has long been buried in and out of print volume (Vol. 22, No. 3) of the bulletin of Geological Society of America. The author is informed (verbal communication by George Buchanan) that Doctor Ulrich is now preparing a revised issue of this work in which will be incorporated the results of his studies since 1911. It is greatly to be hoped that this latter work will be published in a more accessible volume than the former.

Sylvan Shale

Drill cuttings show the Sylvan shale to be a light blue shale averaging 75 to 125 feet in thickness. Where it is overlain by the Hunton formation, 'the upper 5 to 15 feet of the Sylvan is often greenish blue or light olive green in color. North of the Hunton boundary this green phase seldom appears because of erosion. In some areas a greater thickness of the Sylvan exhibits this greenish tint, particularly in fresh, wet samples. The Sylvan is also composed of very dark shale in certain other areas toward its base. This dark color appears to be of local extent.

Taken as a whole the Sylvan shale is remarkable in its lithologic uniformity over broad areas. A hand speciment taken as cavings from a well near Cushing can scarcely be distinguished from a hand specimen taken from the outcrop southwest of Ada. It had long been recognized as a distinct formation in well records before it was identified as Sylvan shale.

To what extent the Sylvan shale is calcareous is not known. The author's observation is that few, if any, thin beds of true limestone exist within it. A slight effervescence in dilute acid seems to indicate that the Sylvan is slightly calvareous throughout.

The Sylvan is readily distinguished in drill cuttings due to its light color since it is everywhere overlain by the Chattanooga black shale or Hunton limestone and underlain by Fernvale (Viola) limestone.

As mentioned above Ulrich has given the age of the Sylvan as Richmond (opp. cit). It's correlation with the Cason shale of Arkansas is also mentioned above.

The Sylvan shale has not been noted in eastern Oklahoma. This is due to the fact that it has been eroded in the Tahlequah area and the horizon of the Sylvan at the base of the St. Clair marble is not exposed farther south in the vicinity of Marble City. However, a diamond drill hole at the latter locality reports about 15 feet of greenish blue shale below the St. Clair which is taken to be the Sylvan. The author is inclined to the belief that a more diligent search of this area may yet discover an exposure of the base of the St. Clair in contact with the underlying Sylvan shale.

Hunton Formation

Taff described the Hunton formation originally (United States Geological Survey, Atoka folio No. 79). Reeds discarded the term in favor of four separate formations on a basis of paleontologic evidence, composed of the same group of rocks, namely, Chimneyhill limestone, Henryhouse shale, Haragan shale and Bois d'Arc limestone. He placed the Siluro-Devonian contact between the Henryhouse and Haragan (Okla. Geol. Survey, Bulletin No. 3.) Morgan, however, showed a tendency to revert to the former term and stated that the name Hunton should be retained as the name of a terrain which includes the same group of rocks designated by Taff as Hunton formation. The latter term is employed in this paper because of the fact that subsurface studies have so far failed to establish which of Reed's units are represented in the Hunton beds of the northern subsurface section. Future studies may permit of the use of Reed's terms. Moreover, field studies by the author and many others indicate that the Haragan shale and Henryhouse shale are in reality so limey or marly that it is doubtful if they should be described as shales. They are in reality just softer members of limestone. They decay and weather when exposed at the surface much more rapidly than the beds of harder limestone above and below. It may be possible that when these units are penetrated by the drill some distance from the outcrop their cuttings may be really limestone only less crystalline than the overlying Bois d'Arc and underlying Chimneyhill.

Whether this be true or not it is a fact that no one has ever yet found any appreciable amount of shale in drill cuttings from the Hunton formation. This is probably due to the fact that the Hunton carries no real shale beds. This is another reason for retaining the name Hunton formation.

At present the formation is really referred to as the Hunton limestone in well cuttings since it appears as a continuous white or gray dolomitic crystalline limestone with such a slight lithologic variation in the vertical section that a differentiation may be possible later, on a basis of micropaleontology, or a more definite tie may eventually be made between the subsurface section to the north and the Arbuckle section to the south, after more wells are drilled.

Identification Important

Economically, the identification of the Hunton is important because it produces oil in some areas, notably 5 miles northwest of Stroud and 4 miles east of the town of Seminole, with numerous scattered showings, but more particularly because of the fact that large volumes of salt water are generally encountered in this formation and since it is encountered at depths ranging from 3,500 feet or more to over 4,500 feet it is frequently confused with the "Wilcox" sand, which results in the abandonment of wells before the latter formation has been tested.

More than 100 wells have encountered the Hunton formation in north-central Oklahoma, many of which reported small showings of oil in this formation. The

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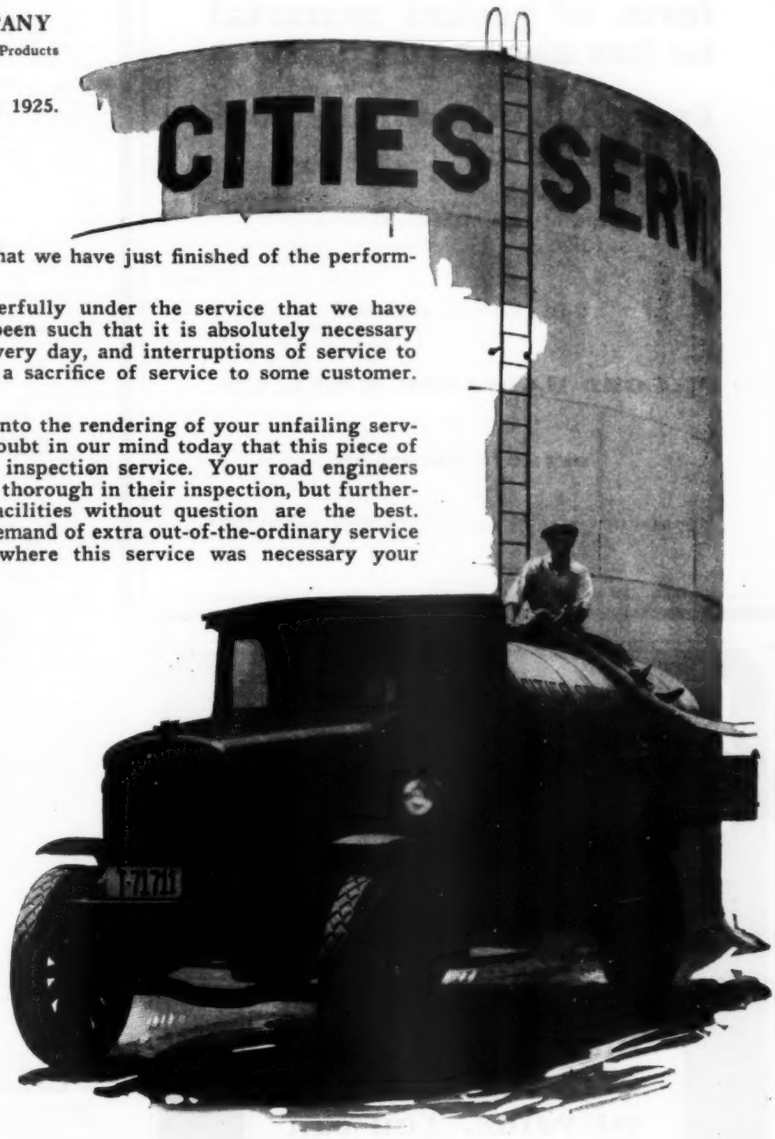

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exact import of these widely scattered traces of oil from this formation is not understood at present.

The lithologic similarity of drill cuttings from the Hunton formation and the Fernvale (Viola) limestone is so strong that the two are not easily distinguished on this basis. Frequently such a determination is not possible until the drill has penetrated the underlying formation. If this be Sylvan shale then the overlying formation is Hunton. If it be Simpson formation then the overlying formation is Fernvale (Viola.)

According to Oklahoma Geological Survery Bulletin No. 35 the St. Clair marble is equivalent to the Henryhouse shale. In this paper it is suggested that the St. Clair is equivalent to the lower portion of the Hunton formation. In other words the base of the St. Clair marble is equivalent to the base of the Hunton formation. It is not known how far below the top of the Hunton the bed occurs, which is equivalent to the top of the St. Clair. The reasons for this are as follows: There is no unconformity at the base of the Hunton. The base of the St. Clair is not exposed. There is an enormous unconformity at the top the St. Clair-Hunton which cuts more deeply into the beds to the northward.

This sort of correlation between St. Clair marble and Hunton formation seems to be in agreement with Ulrich's idea.

Sylamore Sandstone (Misener)

The close of Devonian time in Oklahoma was followed by a long period of erosion which truncated all of the older formations from the top of the Hunton, to the south, down to horizons well below the top of the Arbuckle, to the north. This period of erosion did not close until the land area over northeastern Oklahoma was practically baseleveled. A surprisingly small amount of erosion debris was left upon this old eroded surface. However, there were a few sand dunes composed of sand derived from the Simpson formation. In addition to a few well-developed dunes a thin veil of wind-blown sand was scattered over broad areas. This sand was preserved by the deposition of the Chattanooga shale above it. Where it is exposed in eastern Oklahoma and Arkansas it is known as the Sylamore sandstone. By the drillers in the oil country it is called the "Misener" sand. Because of its source of origin, therefore, samples of it from wells resemble samples from the "Wilcox" or Burgen. It is extremely lenticular in extent. Wells drilled to this sand are often dry, even though higher structurally than offset wells producing from it, because of its absence. Where the "Misener" is sufficiently widespread for structure to affect the accumulation of oil, it produces on domes or anticlines. In most cases, however, it produces as a true lense without reference to structure.

The age of the Sylamore sandstone has been considered to be Devonian in all of the publications dealing with it in Oklahoma, Kansas, Missouri and Arkansas. This was because of the supposedly Devonian age of the overlying Chattanooga or because of the overlying supposedly Chattanooga. However, Dr. E. P. Branson of the University of Missouri has shown that the Sylamore sandstone and the overlying black shale of Arkansas and Missouri are basal Mississippian. (Paper read before A. A. P. G. convention at Wichita, Kans., in March, 1925.) The author has reached the same conclusion regarding the Sylamore and Chattanooga in Oklahoma. The latter conclusion is based solely upon the stratigraphic relations. That Chattanooga shale follows the Mississippian everywhere in contrast to its relations with the Devonian (Hunton) and older formations. There is no pronounced depositional break between the Devonian (Hunton) and Chattanooga. Therefore, it seems reasonable that the Devonian-Mississippian time division should be marked by this tremendous stratigraphic hiatus at the base of the Chattanooga, rather than by the conformable contact between the Chattanooga and Mississippian limestone. This latter conclusion is arrived at solely from a study of the stratigraphic relations while Doctor Branson's conclusion was based upon paleontologic evidence.

These conclusions mean either that the black shale of the Ozark region is not the Chattanooga or that the Chattanooga is not Devonian, but Mississippian, in age. The author suggests to the gentle reader that he take whichever pill goes down best.

Furthermore, subsurface studies convince the author that the Chattanooga shale cannot be correlated with the Woodford formation. This is because of the uniform lithology and limited thickness of the Chattanooga over broad areas. Chattanooga of this character has been identified in wells only a short distance north of the Arbuckle Mountains. The Chattanooga is a thin-bedded fissile black shale about 20 or 30 feet thick only 20 or 30 miles north of the Arbuckle area where the Woodford formation has a thickness ranging from 200 to 625 feet and is composed of about half and half hard platy shale and thin beds of chert. The author's suggestion is that the Chattanooga is probably absent in the Arbuckle section.

KENTUCKY-TENNESSEE

(Continued from Page 50)

New Domain Oil & Gas Co. is still reported pumping salt water from its No. 4 Besse Snell Clark lease. Twin River Oil Co. is down close to 500 feet at No. 2 James Dethridge lease. American National Bank Co.'s No. 11 on the Gillespie 50 acres is drilling around 200 feet, while Doctor Cauble and others are around 400 feet at No. 5 J. T. Vance lease.

In the Scottsville Field of Allen County, J. B. Hutton's No. 6 on the A. A. Davenport is credited with 2 bbls. at a depth of 330 feet. White Plains Oil & Gas Co.'s No. 21 W. B. Tabor is due for completion. Ziegler and others' No. 1 H. Ayres is near sand, while R. A. Stohr's No. 6 W. L. Motley is due to be completed within a few days.

Eastern Division

The outstanding feature of the eastern Kentucky division was the bringing in of a well far above the average in the old Lee County Field. The new well is really a test, being located some distance from production, and was drilled by Tincher, Perdue and others on the McGuire heirs land, in the Heidelburg Field, District 35, with a flush of 100 bbls., making it the largest producer found in that well-known oil county for close to a year. A second well is being started on the same acreage and advice is that the new well will bring about a more active drilling campaign for that part of Lee County which has been very quiet for four or five years. The Ohio Oil Co. is drilling No. 16 on the Flahaven Land Co.'s tract, in District 18, and Cook and others their No. 2 Wylie Bryant, same area. The Rex-Pyramid Oil Co. is drilling a test on the Thomas Foreman tract, in District 36, and the Superior Oil Corp. is drilling a test well near Foreman. Same company is drilling No. 12 on the E. L. Rogers, in District 16.

Wayne County

The Beaver Petroleum Co.'s No. 3 John Flenn, in the Monticello Field, District 5, in Wayne County, is in with a flush of 4 bbls. Abbott & Porter are drilling No. 3 Coffey-Oatts, same district. The Wood Oil Co. is drilling a test one-half mile east of Oil Valley, same county.

Dillon & Wetzel drilled a duster in No. 8 on the J. Cooper, District 3. Marsh & Shearer are drilling No. 2 L. F. Guffey, District 13. In District 2, B. S. Huffaker is near pay sand in No. 4 on his own property. Bell, Bell and others are working at No. 3 Coffey heirs, and the Vulcan Oil Co. is drilling No. 17 G. Y. Davis, same district.

North Weir Field

In the North Weir Field of Lawrence-Johnson Counties, the Swiss Oil Corp., which recently took over the big holdings of the Union Gas & Oil Co., has brought in two nice Weir sand wells. No. 40 on the J. J. Gambill, District 32, showed a flush of 20 bbls. as did its No. 27 on the Sanford Lyons, District 22-A. This

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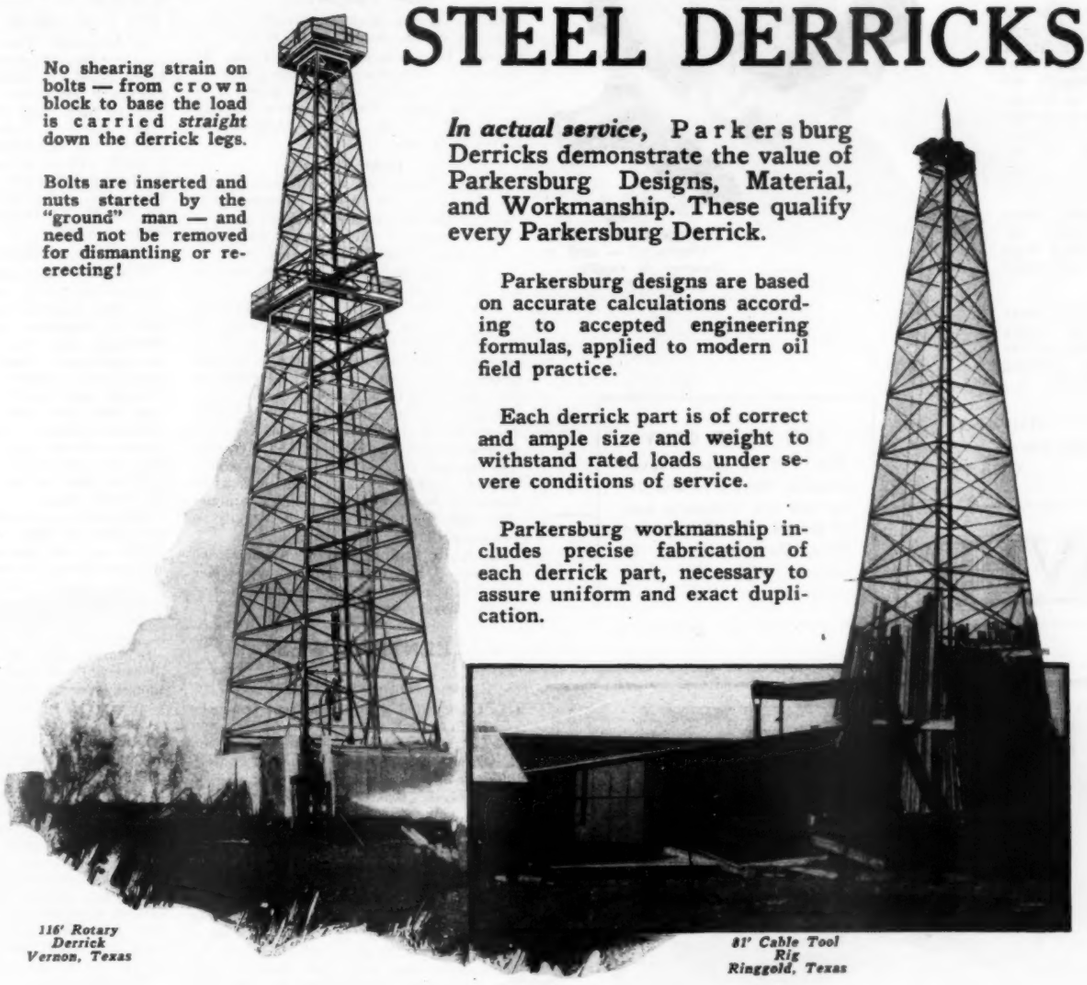

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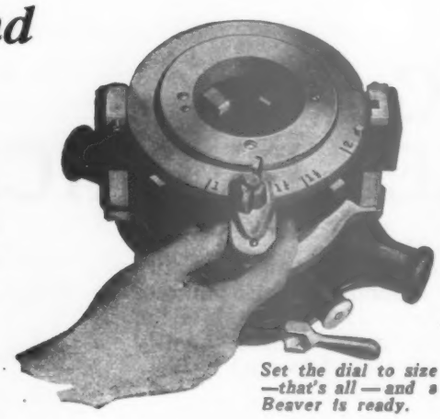

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company, according to reports, will renew activity on its holdings as there are many hundreds of locations to drill.

South Weir Field

In the South Weir Field of Johnson-Magoffin County the banner well of the late reported completions was made by the Bed Rock Petroleum Co. in its No. 21 J. H. Arnett in District 31. In District 29, R. G. Gillespie's No. 1 on the Floyd Hale is credited with a flush of 5 bbls. from the Weir sand.

Other Completions

In the Irvine Field of Estill County, Miller & Childs' No. 5 A. K. Wagers, in District 10, is reported at but 1 bbl. In District 7, Marcum & Howell's test on the Garrett Tipton was a dry hole.

In the Ophir Field, District 30, the Eagle Oil Co.'s No. 2 Jesse Cole is estimated at 2 bbls.

Field Notes

Albert Wetherholt of Huntington, W. Va., has leased the Askins 50-acre tract, near Deanefield in the northern part of Ohio County, in the western Kentucky division and will do some test work in the near future. This lease is east of the Powers Pool.

Cloverport, just over the Hancock County line in Breckenridge County, in the Owensboro region, has had a better supply of gas this winter than in several years and in spite of the cold weather. The good supply is due to the gas reservoir installed last spring by W. J. Wordenmowner of the Cloverport Gas Co., and another well in the east end of Cloverport was turned in last fall. Mr. Wordenmowner states he has plans which he hopes to carry out the coming summer that will greatly increase the supply of gas over that of this year.

In Knox County, in the southeastern portion of Kentucky, Dizney & McKee are down a few hundred feet in a test on the Dizney tract.

CENTRAL WEST

(Continued from Page 76)

Gas Co.'s third well, 1,050 feet from the north line and 650 feet from the east line of the G. B. Frey 170 acres, Section 3, Orange Township, is a nice gas well. The Logan Gas Co. is drilling No. 3 on the J. F. Brockaway 105 acres, Section 4 same township.

In the Chatham shallow sand field of Chatham Township, Medina County, the Star Oil Co.'s No. 6 well, 950 feet from the north line and 150 feet from the east line of the L. J. Kent farm, Tract 15, Lot 57, and about a mile east of the town of Chatham, is credited with a production of 20 bbls., which is an exceptionally fine well and should bring out additional development in the field that was so active some few years ago.

In Lorain County, Columbia Township, the Ohio Fuel Gas Co.'s second test on the northwest corner of the W. C. Jasper 90 acres, Lot 33, is a fair sized gasser at 2,795 feet, and its second test on the J. M. and A. Ashman Lot 28, is a better gasser at 2,780 feet. Dillon & McFrederick are at work on a test 550 feet from the south line and 325 feet from the west line of the C and I. Chope 86 acres, Lot 6.

In Kilbuck Township, Holmes County, the Ohio Oil Co. is drilling a test 660 feet from the south and east lines of the Albert Smith 40 acres, Lot 23, and made a location for a second test 695 feet from the south line and 660 feet from the west line of the Richard Mohr 74 acres, Lot 19. The Ohio Fuel Gas Co. is drilling its test in the northwest corner of the Isaac Pyers 60 acres, Lot 12.

The Ohio Fuel Gas Co., after a long delay, has at last completed its test on the S. E. Oghier farm, Section 14, Washington Township, Jackson County, for a duster.

In Carthage Township, Athens County, the Logan Gas Co. brought in a very light gas well at a test 950 feet from the north line and 550 feet from the west line of the C. L. Knight 54 acres, Section 3, the gas being found in the Keener sand. Hawkins and others are drilling No. 1 on the Oliver Davis 2 acres off the northwest corner of the A. J. Runyan farm, Section 36.

Test in Cuyahoga

In the Cleveland district, in Dover Township, Cuyahoga County, Hulse & Kundtz are drilling a test in the southwest corner of the J. Jenkins 30 acres, Lot 28, and the Logan Gas Co. is drilling a test in the southwest corner of the F. A. Weston 10 acres, Lot 48. In Strongville Township, same county, the East Ohio Gas Co. made a location for a test in the southeast corner of the B. H. and E. A. Adams 108 acres, Lot 50.

Offside Wells

In Alexander Township, Athens County, the Ohio Oil & Gas Co.'s No. 4 M. Jones lease, and Givin and others' No. 4 Ellsworth McKnight lease, are credited with 10 bbls. each from the Berea sand.

In Barlow Township, Washington County, the Muskingum Gas Co. struck a 2-bbl. well at a second test on the G. N. Loynachan lease, in the second Cow Run sand, and a fair gas well at a test on the F. P. Deming, Lot 17, in the 500-foot sand.

Michigan

With the completion by the Saginaw Prospecting Co. of four wells during the past five months just to the northern edge of Saginaw, in Saginaw County, Michigan, and the fact that the wells are reported to close around a combined production of better than 50 bbls. daily, it looks very much as though a prominent field had been unearthed by this company which is composed of Saginaw business people, and much credit is due them for they have opened up the only real oil field of any note yet found in the whole State.

Extension of Saginaw oil prospecting was given its first southward turn when officers of the Saginaw Prospecting Co. announced that their No. 6 well will be located on the Northmoor subdivision, about 600 feet southeast of the discovery well in Deindorfer woods. This location is the first to be announced inside the city limits and the first south of the line of wells in which oil was first found, though several are being drilled or projected north of that line.

The Saginaw Prospecting Co. announced that it will put two drilling outfits into operation in the near future, making possible more rapid conduct of prospecting operations. The crew that has drilled its first four wells has started No. 5 and a second crew and drilling outfit will be put to work on No. 6, it was announced. Heretofore the company has drilled only one well at a time, but plans during the summer to have two at a time under way. It will probably be a few weeks before the second crew and outfit can be prepared to start on No. 6, it was said.

The Bliss Petroleum Co.'s No. 1, north of the discovery well of the Saginaw Prospecting Co. a short distance, is in the Berea sand and making a showing, but will be given a shot and until then nothing definite as to its value can be given. No. 2 of this company has been located about 1½ miles to the north of the discovery well, and the drilling well of the Sun Oil Co. is between the Bliss Petroleum Co.'s No. 1, now in the process of completion and the location for No. 2 well. The Sun Oil Co.'s and the Bliss Co.'s second test will go a long ways toward showing the extent of the Berea sand producing area to the north of Saginaw. Bliss' No. 1 well had 500 feet of fluid in the hole.

Twenty-three oil leases were filed during the week at the office of Miss Elizabeth B. Hesse, register of deeds. They were recorded in the name of George Irving, trustee, in behalf of the Ohio Fuel Gas Co. with headquarters at Columbus, Ohio. Seventeen of the leases are in Buena Vista Township, four in Saginaw Township and two are in Bridgeport Township.

NEW HOUSTON CO. DIRECTOR

HOUSTON, Tex., Mar. 27.—The annual stockholders' meeting of the Houston Oil Co. resulted in reelection of former board of directors, except M. A. McMillan of St. Louis, who was elected to fill the vacancy of Murray Carlton, deceased.

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Cementation of Wells Now Completed in Four Days Instead of Ten

(Reprinted from The Mexico News. Mexico, D. F., Mexico.)

As a result of exhaustive experiments carried out by the Petroleum Technical Department of Tampico, and the Petroleum Department in this city, the secretary of the Department of Industry, Commerce and Labor has approved the use of Konset, a cement accelerator, in the cementation of wells.

The petroleum inspectors have been authorized to allow the drilling out of plugs, and for the work to be gone ahead with four days after cementation if Konset has been used, and if the tests made by the inspectors show that the loss of pressure be within the limits specified by Petroleum Department regulations.

The authorization of the use of Konset by the Department of Commerce and Industry does not mean that in general the use of all accelerating compounds are authorized. It is expressly stated that no accelerator may be used in the cementation of wells except Konset.

Good News to Producers!

Use Konset in your cementations and you can drill plugs in *four** days instead of waiting *eight to ten.*

That is the decree of the Mexican Petroleum Dept., dated Jan. 7th, 1926. No other accelerator is permitted to be used by this order. Konset only has been approved.

The tests of Konset included actual cementations of wells in the Ebano district and the high pressure Cerro-Azul district, where 650 lbs. test pressure was placed on the wells after four days without the gauge showing an ounce of loss!

Write for description of these tests and information and prices on Konset.

*Note—In U. S. plugs can be drilled in 3 days (72 hours) when Konset is used.

CALIFORNIA FIELDS

(Continued from Page 46)

pears too far removed from the present producing extensions and too close to pick up another independent and possibly parallel structure. W. H. Playter's No. 2 Cerritos, in the northern part of the extension but somewhat west of the California Petroleum's projected test, is standing cemented but will probably be drilled out some time within a few days. It is reported that an underground survey showed that the Star Petroleum was responsible for the rather unusual predicament of its No. 2 Colby and the Wilshire's No. 2-A Cerritos. It will be recalled that the Star Petroleum ran into the drill pipe of the Wilshire's well about two weeks ago while both were drilling ahead. The Star shot No. 2 Colby at 1,550 feet and is trying to sidetrack into a new hole at that point. The Wilshire, however, is experiencing considerable trouble with its No. 2-A Cerritos, which is down 2,096 feet. The company has found it impossible to establish circulation, as the fluid from this well is entering No. 2 Colby of the Star Petroleum.

At the close of the current week there were 78 wells drilling ahead below the 4,000-foot level and an additional 25 making hole between 3,000 and 4,000 feet. The bit in 14 instances was above the 3,000-foot mark, compared with 17 during the preceding week. These figures indicate that drilling operations in the extension have not yet shown any appreciable drop, the new work started just about offsetting the completions. During February there were 57 wells completed in the Long Beach Field good for an aggregate initial daily output of 17,471 bbls., compared with 27 during January, whose total initial daily production was 9,178 bbls. There were 57 new rigs erected during January and 78 in February and, although there were more derricks put up during the past month, the number of wells drilling at the close was slightly smaller. The total production of crude in the Long Beach Field during February was 3,186,230 bbls. This is a daily average for the field of 113,794 bbls. and represents an average daily well production of better than 167 bbls. This is quite remarkable when one considers that the average daily well production for the entire State is a little less than 55 bbls.

Rosecrans

The Barnsdall's No. 9 O'Dea, brought in late this week, has shown a very decided improvement and the cut at present is only running around 20 per cent. No. 10, on this lease is drilling ahead in a hard sand at 3,040 feet and looks good for completion within 60 days. The California Petroleum is listing two dusters for abandonment and will, incidentally, charge off about $150,000 to profit and loss. The company made every effort to secure production but the grease was not there and No. 1 McCormick is accordingly being listed for abandonment at 5,156 feet, and No. 1 Fox at 5,046 feet. The company has two other dusters, No. 1-A Ducommon at 5,177 feet and No. 1 Folsom at 5,377 feet, and it is thought salvage work will get under way shortly. All four wells, located in the northern part of the field, appeared to have a good chance of securing production when spudded in but were later proven to be outside of the productive limits. The Marine Oil Corp.'s No. 39 Athens, being carried down for deeper production, is drilling ahead at 4,340 feet but has not found anything since passing through the upper horizon.

Production of crude in the Rosecrans Field has been declining quite steadily for the past several months and, although some effort will undoubtedly be made to stimulate production as a result of the recent price increase, the tendency will undoubtedly continue downward. This continued decline, while it will not be large, is because drilling operations have been reduced to a minimum. There were only 12 wells drilling in this field at the close of February and it is quite likely this figure will drop with the completion of a few wells which should be on production within two or three weeks. The district's total crude production during February was 600,697 bbls., a daily average of 21,453 bbls., and since there were 119 wells producing during the month, the daily average well production was 180 bbls. This is considerably in excess of the average daily well production for the Long Beach Field but it must be remembered there are nearly six times as many wells producing in the latter area, a great number of which were producing before the Rosecrans Field was discovered.

Inglewood

The Pacific Oil Co. recompleted No. 14 Baldwin and finished two new wells, Nos. 19 and 37 on the same lease at Inglewood during the week. The latter was not actually put on a production test but it is scheduled to be drilled in tomorrow. No. 19 Baldwin, carried down to 2,741 feet and finished with a 6¼-inch oil string, is a pumper doing 75 bbls. of oil and 20 bbls. of water daily. No. 14 Baldwin, the recompletion listed, turned out to be an excellent well. It was originally drilled to 2,195 feet but later plugged back to 2,127 feet because of water and finished with an 8¼-inch oil string, 1,120 feet of which was 70-mesh screen. Flowing through a ¾-inch beam under a pressure of 280 pounds, this rejuvenated well tanked 602 bbls. of 21.6 gravity oil.

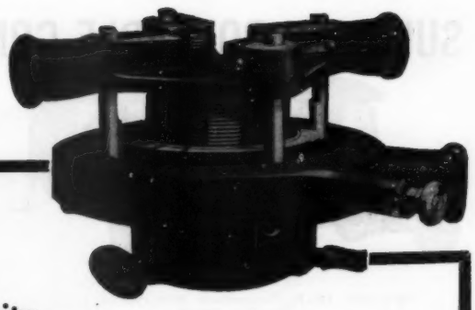
The Petroleum Securities did not secure a satisfactory water shut off in No. 9 Cone but this well, which is scheduled to throw considerable light on the potentiality of the deep zone in this field, should be ready for another production test within 10 days. The principal interest now centers around the Associated's No. 2 Vickers, which is down 2,800 feet. At this point No. 2 Vickers, which is coring a good oil sand, is said to be approximately as deep stratigraphically as the Shell Co.'s No. 9 Rindge, which has been producing from 3,100 feet for eight months. The Associated's action in deepening this hole is likely to result in similar activity on the part of both the Standard Oil Co. and the Petroleum Securities, as No. 2 Vickers is located in the corner of the Associated's Vickers lease, directly offsetting both the Standard's Los Angeles Investment lease No. 1 and the Petroleum Securities' Rubel property. The Standard's deep test, No. 1 on Vicker's lease No. 3 in the extreme western part of the field is drilling ahead instead of making a test of the showings found around 4,860 feet. The company spudded in a new hole during the week, No. 43 on Los Angeles Investment lease No. 1, and started rig construction for No. 5 Stocker.

The Inglewood Field yielded 1,542,463 bbls. of crude during February and, although it only showed a decline of 1,945 bbls. from the daily average recorded during January, it is believed the drop during March will be around 2,500 bbls. a day. The average daily well production in the Inglewood Field during February was 299 bbls., considerably higher than the corresponding figures for either Long Beach or Rosecrans.

Torrance

The Chanslor-Canfield Midway Oil Co. finished two new wells in the Torrance Field during the week, both on the Del Amo lease. No. 98 Del Amo was a 70-bbl. pumper from 3,397 feet but No. 52 came in flowing 626 bbls. of 22.3 gravity oil cutting 2 per cent. It is interesting to note that the initial production of this new well was nearly equal to the combined output of the five producers finished in this area during the entire month of February. The Chanslor-Canfield Midway Oil Co. only has two incompleted drilling projects in this area, Nos. 29 and 34, and, judging by its present status, the latter should be tanking oil within 10 days. The company is rigging up Nos. 58, 68 and 89 for early work but drilling operations from now on will go ahead slowly. The Fullerton Oil Co. is also preparing to start some additional work by rigging up No. 6 Waddell.

The Petroleum Securities is hauling in material for a new rig on the Hogan property and it is thought the company will get under way within three weeks.



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The Superior Oil Co. is drilling ahead at 2,900 feet in its No. 29 Torrance, and it is reported this will complete the company's drilling program in this area. The Torrance Field produced a total of 818,823 bbls. of crude during February, a daily average of 29,244 bbls. This field, with its 592 producing wells in contrast to Inglewood, Rosecrans and Long Beach, showed an average daily well production of only 49 bbls.

There were no completions listed in the Dominguez Field during the week but it is possible at least one new well will be finished within 30 days, as the Union and Shell are each working on three drilling projects. Production in this field has shown a steady decline for the past year or so, but by additional drilling it could be boosted very appreciably if the Shell or Union needed more oil for refining purposes. The field's total crude output last month was 626,895 bbls., an average of 22,389 bbls. daily. The average daily well production during the month of February was 349 bbls. from 64 wells.

Montebello

The Standard finished its No. 16 Temple in the Montebello Field at 3,400 feet but the outcome was very disappointing. The well started off as a 90-bbl. pumper but, notwithstanding this small output, the company continued rigging up No. 17 Temple on the same property for an early spud. No. 66 Baldwin and No. 3 Howard-Smith were both started early in the week and are going along steadily. The St. Helens Petroleum is rotating ahead in No. 1 P. & B., a recent spud, but has not yet started actual drilling operations on No. 12 Monterey. The McCaslin Oil Co. has leased the 20-acre Patton-Gregg property at Rideout Heights and rig material is already being placed on ground. Both the Pan American and Petroleum Securities are going ahead in their respective tests in this area.

The Birch Oil Co. finally succeeded in finishing its No. 2-A in the Fullerton Field which is doing 340 bbls. of 26.4 gravity oil daily from 5,060 feet. It is the present intention of the company to put the well on a compressor and it is possible the output may be stepped up. No. 1-A has not yet been spudded in but an early start is anticipated. The Fullerton Oil Co. has completed its No. 19-A at 5,398 feet and it will be put on a production test early next week. The Union Co's. No. 1 Olinda, a wildcat in the Fullerton district, is drilling ahead in a brown shale at 3,420 feet and, although there have not been any favorable indications to date, it cannot be relegated to the doubtful list, notwithstanding production was anticipated around the 3,000 foot level. Drilling will continue in the hope of developing the deeper production originally expected. The Union has three drillers on its Stearns lease in this field, Nos. 58, 66 and 67, all three being down approximately 3,000 feet.

Richfield

It took the Standard about two days of bailing and swabbing to bring in its No. 20 on Kraemer lease No. 2 at Richfield but it finally got under way and is at present making 270 bbls. of 22.9 gravity oil. No. 21 on this property is rotating ahead at 2,500 feet. The rig builders are putting the finishing touches on the derrick for the Standard's new well on the Anaheim Union Water Co's. lease and the necessary preliminary preparations should be completed within several days. The General Petroleum has not yet spudded in No. 6 Stern at Richfield but is going ahead steadily in No. 7 Thompson, which has just passed the 1,100-foot level. The Continental's No. 1 Kraemer developed some very favorable ind.cations early in the week at 3,490 feet and the outlook for production is quite good.

The Marland has resumed drilling on No. 1 Bixby at Seal Beach following its inability to successfully eliminate water and the hole will be carried down in search of a deeper producing horizon. The Marland's well at one time was on temporary production and indications pointed to a satisfactory completion. Water broke in a short time later and the crew was never able to eliminate it. No. 4 Bryant of the Shell, an east line offset to No. 1 Bixby of the Marland, is rotating ahead in a sandy shale at 4,338 feet. The Associated has not done any further work on its Hellman property but will probably spud in another diamond core hole within a short time, as location has already been staked.

Midway-Sunset

The largest well finished in the Midway-Sunset area during the past week was the Pacific's No. 86 at Maricopa in Section 30-12-23, which came in flowing 1,060 bbls. of 25.4 gravity oil daily. This new producer, which is located just south of the United's No. 3 Calivada, was finished at 3,703 feet and is flowing through a one-half-inch bean under a pressure of 260 pounds. The Honolulu Consolidated brought in two wells in Section 4-32-24 and will probably finish another on the same property within two weeks. The company's latest acquisitions were No. 33 doing 40 bbls. from 3,120 feet and No. 58 making 200 bbls. from 3,300 feet. The Union's No. 13 Federal in the Elk Hills Field did not come in under a natural flow and the company is making preparations to put it on the beam at 3,586 feet. The Standard's No. 22 at Wheeler Ridge in Section 27-11-20, was a 148-bbl. pumper from 2,325 feet.

Ventura

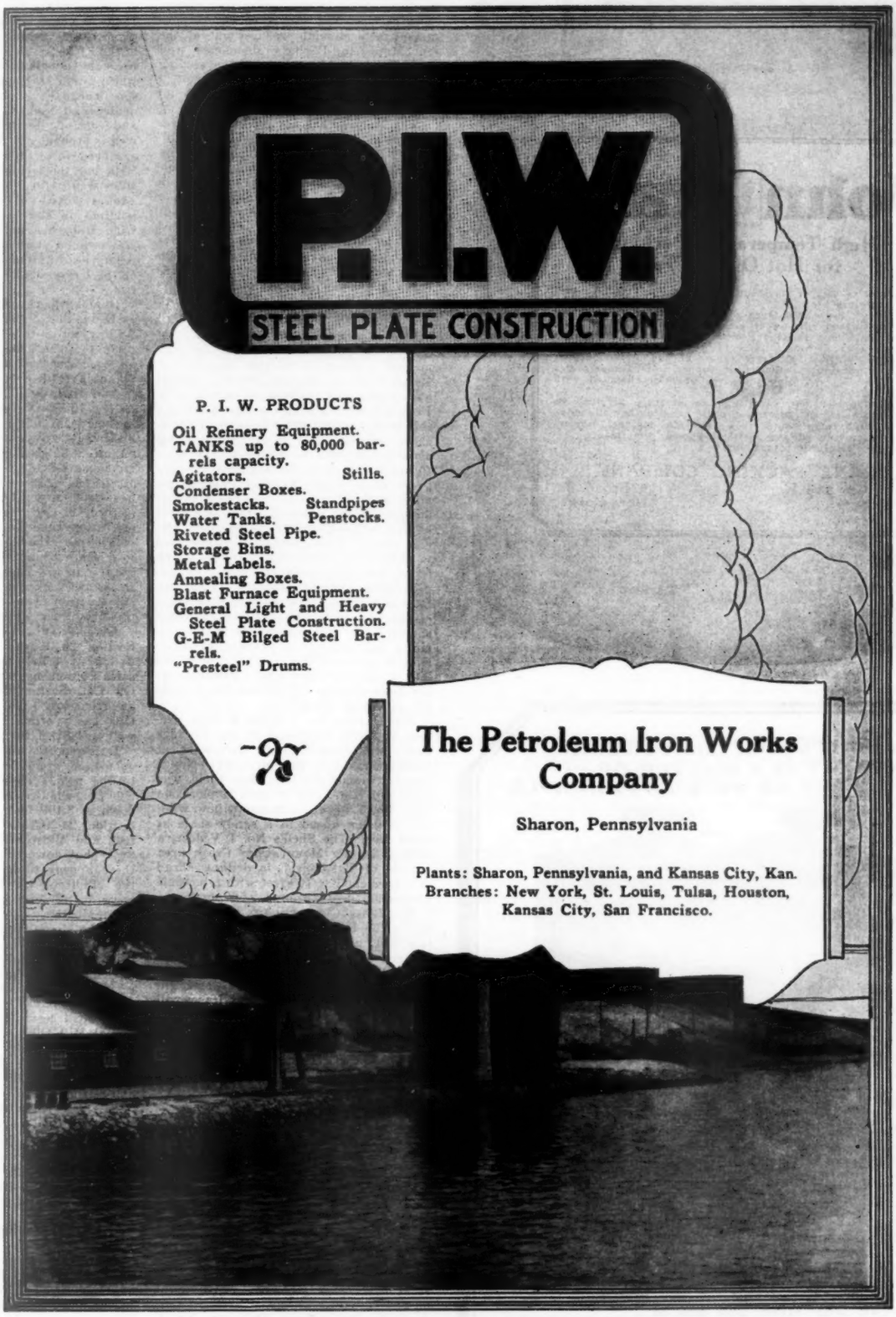
The Associated's No. 101 Lloyd in the extreme eastern part of the Ventura Avenue Field will probably be given a test within a short time and, although the company would like to carry it down another 150 feet, it is problematical whether this can be done due to the heavy gas pressure which has become a troublesome factor. It is hoped the company will be able to secure a penetration of at least 500 feet in order to test out thoroughly the deep zone at this point. The company is stepping right along with its development program on both the Lloyd and Hartman leases, No. 3 on the latter property having just passed the 4,050-foot level. The Shell is also steadily at work on the Edison and Gosnell leases and, although there are no drilling projects on the Taylor property at present, rig construction is under way for three new wells.

The General Petroleum has one driller on the Notten lease and another on the Barnard property but may, it is reported, increase its drilling work later in the summer. The Bolsa Chica's No. 1 Hartman, a north line well, is drilling ahead at 3,605 feet, while the Petroleum Securities No. 1 Willett has just passed the 3,500-foot level. The Chanslor-Canfield Midway Oil Co's. No. 1 Hobson, west of the Ventura Avenue Field, is standing cemented at 3,825 feet, while the Milham's No. 1 Sexton, east of the productive area, is rotating ahead at 3,688 feet. Hoyte S. Gale's No. 2 Beardsley, not far from Camarillo, is down 2,400 feet, the present formation being a hard sandy shale.

Southern California Wildcats

The Russell Petroleum will drill out its No. 1 Joughin in the Chatsworth area tomorrow and this rather promising looking wildcat will be put on a test a short time later. The hole showed considerable promise and even though commercial production is not secured, it has focused the attention of wildcatters on this vicinity. Reports coming in from the field indicate the Standard is leasing property about 5 miles distant from the Russell's wildcat, but this has not absolutely been confirmed. It is known, however, the Standard is watching developments in this vicinity. The area around Manhattan Beach, Hermosa and El Segundo is coming in for considerable attention because of the possibility of opening up a new field in that vicinity. There is more activity in this district than there has ever been and, while one or two major companies do not regard the area as promising, there are others equally certain a new field will be opened as a result of new work started.

The Julian Petroleum has resumed drilling on its Manhattan wildcat following a suspension of several weeks because of the necessity of concentrating its endeavors in the Long Beach extension. The Julian Petroleum has two leases in this



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vicinity, a 100-acre tract and a 90-acre lease, about a mile apart. Between these two, the Standard holds a lease on 80 acres, while the Superior Oil Co. owns considerable acreage in fee. The Shell and California Petroleum also have protective acreage in the immediate vicinity. The Bardeen Oil Co. is endeavoring to make a commercial producer out of the old Manhattan-Pacific's abandoned well in this area and, although it is seeping some oil, operators are quite doubtful that Bardeen will be successful in its securing anything worth while.

The Marland has not yet found any favorable indications in its Hyde Park wildcat, No. 1 Connelly, which has just passed the 4,200-foot level but may eventually succeed in securing some oil in No. 1 Wickham in the Santa Susana area, Section 32-5-17. This well was put on a pumping test after being plugged back to 2,678 feet, but the entire first day's production was water, although there was a little oil present. The Milham's Playa del Rey wildcat is rotating ahead in a gray sand at 3,760 feet.

Northern California Wildcats

The Associated must be pretty well sold on the possibility of developing commercial production in the vicinity of Raisin City, as the company has carried on an extensive exploration campaign in Fresno County during the past year and this work has just culminated in the purchase and leasing of approximately 6,000 acres which will be tested in the near future. The property acquired lies between Kerman and Kearney Park, a few miles west of the city of Fresno and is adjacent to the company's pipe line right of way, which parallels the Southern Pacific tracks. The Associated drilled three wildcats in this area during the past year or so but they were abandoned as unproductive and the property leased was later quitclaimed. In the opinion of some of the best geologists in the State there should be a field somewhere in this vicinity but, since it is practically impossible to geologize the area because of the lack of surface indications, numerous survey holes must be drilled and this is quite an expensive proposition.

The Union's No. 1 Miller & Lux, Section 16-28-20, northwest of the Belridge Field, was reported early this week at 1,560 feet, while the Marland's No. 1 Lazard, west of the Lost Hills Field, was down 601 feet. The Milham Exploration Co's. No. 1 Sisson, a Buttonwillow wildcat, is going ahead in a sandy shale at 1,681 feet. The Shell's No. 1 Vedder, a wildcat in the Mount Poso Creek area outside of Bakersfield, is drilling ahead in a hard sand at 760 feet with a possible completion depth around 2,500 feet.

The Bolsa Chica Oil Co. put its wild cat in the Kettleman Hills on a production test, and although it yielded about a barrel of oil, it does not look as though the well will be commercially productive at its present stage. It does look encouraging, however, and the lease will warrant further development, since this show is coming from the comparatively shallow depth of 1,798 feet. The Pyramid Oil Co. is cleaning out its Monterey County wildcat and should be in a position to begin drilling ahead within a short time.

CANADIAN FIELDS

(Continued from Page 42)

ern Alberta No. 1, LSD 4, Section 18-20-2w5, which is at 3,543 feet and had at one time a fair commercial production, is also to be deepened. The drillers are now reported to be cleaning out the hole preparatory to going deeper. Dalhousie No. 2, formerly Southern Alberta No. 2, LSD 2, Section 4-18-2w5, which is at 3,700 feet with some oil, wil remain shut down for the present. Dalhousie No. 4, the old Alberta Southern No. 2, LSD 8, Section 13-20-3w5, which was at one time drilled to about 1,400 feet, will probably be left at this depth, pending the result of the deep drilling on No. 3 in the same section.

Drilling Again

Royalite Oil Co.'s No. 5, LSD 13, Section 7-20-2w5, has been held up with a fragment of rotary bit in the hole at 2,979 feet. The lost tool has been successfully pounded to pieces and the test is again drilling and getting close to 3,000 feet. Royalite's No. 6, LSD 16, Section 31-19-2w5, is shut down at 2,854 feet.

Vulcan Oil's No. 1, LSD 11, Section 13-20-3w5, has received a lost bit after several days' fishing and is again drilling at 4,140 feet. The bit has since passed through the black Fernie shales into a white formation supposed to be the Madison limestone; if this proves correct the drillers will cement in the 8-inch casing and continue to drill open hole till the well is brought in. Vulcan Oils, Ltd., has arranged for a drilling outfit for No. 2 well, but the location will depend on results secured in No. 1. Paramount Oils, Ltd., reported to be spotting a test on holdings in the Turner Valley. Elbow Oils, Ltd., has arranged to bring in a standard rig, and has secured Dr. J. A. Allan, head of the geological department of the University of Alberta, to locate its test.

Illinois-Alberta Oil & Refining Co., LSD 14, Section 12-20-3w5, has resumed drilling and is now down 3,296 feet. The company, which has a fair production of oil and gas in the upper horizons, is planning to drill into the Royalite sand in the Madison lime.

New Black Diamond Oil Co. is unloading material at a location on LSD 1, Section 3-20-3w5, and will resume work on an unfinished test of the old Black Diamond Oil Co., which is now down 1,280 feet. Belgo-Canadian Oils, Ltd., has taken over the holdings of the old Record Oil Co. and is securing a drilling outfit to resume work on the deep test, which was carried by the former owners to a depth of 4,327 feet, being the deepest test in the Turner Valley Field. The Record Oil Co. got several oil showings, but apparently failed to reach the main producing sand at this depth.

Advance Oils, Ltd.'s No. 1, LSD 14, Section 20-19-2w5, is reported running casing at 3,160 feet. Advance No. 2, same section, has spudded in. Big Chief Oil Co., Section 5-20 2w5, is reported drilling below 1,000 feet. Cooper-Nanton Oils has spotted a location for No. 1 well on LSD 2, Section 7-20-2w5.

It is reported that drilling may be resumed on a number of unfinished tests in the field. These include Albert Pacific Consolidated, Section 20-19-2w5, shut down at 3,100 feet; Midwest Oils No. 1, Section 24-20-3w5, shut down at 3,780 feet, and Midwest No. 2, Section 31-19-2w5, shut down at 3,740 feet. None of these appear to have been carried into the Madison, which, at the time they were drilled, was regarded as hopelessly nonproductive.

In the Moose Mountain Field, Cherokee Oils, Ltd., has taken over an unfinished test on LSD 7-8, Section 33-23-5w5, and has finished underreaming and setting casing, and is making new hole at 1,463 feet. The well is being finished as a diamond drill test. In the same area the Signal Hill Oil Co. has taken over two unfinished tests on LSD 9, Section 34-23-5w5. No. 1 is standing at 2,420 feet, but No. 2 at 2,040 feet is underreaming and setting casing.

Foremost Field

A Montreal syndicate has taken over some holdings of United Oils, Ltd., in the Turner Valley Field and will put down a test. The company holds considerable acreage in this field, on which several tests are now being drilled on a royalty basis; and it is accordingly planning to develop its holdings in the Foremost Field.

In the Jumping Pound district, Imperial Oil, Ltd.'s Bow Valley No. 1, LSD 15, Section 12-25-5w5, is reported drilling at 880 feet, having made 348 feet of hole in a week. In the northern foothills west of Edmonton, Imperial Oil, Ltd.'s Coalspur No. 2, Section 3-49-31w5, is down 4,035 feet and working on 6¼-inch casing. In the southern foothills west of Nanton, Imperial Oil, Ltd., Rice Creek, Section 4-14-2w5, will resume drilling this spring around 4,000 feet.

In the Border Field, near the Montana boundary, Imperial Oil, Ltd., is making

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preparations to drill its Erickson Coulee test, east of Coutts, in Section 8-1-12w4. This test was rigged up last fall with a heavy rotary outfit and steel derrick. The test will start drilling about April 1. Urban Oils, Ltd., Section 4-1-15w4, is reported shut down at 2,740 feet waiting for casing. It is reported a new test will be drilled on the Rogers-Imperial structure this year, about midway between the Rogers-Imperial well in Section 29-1-11w4 and the Imperial Oil, Ltd. Dead Horse Coulee No. 2, a mile to the north. The Rogers-Imperial has a big gas production, estimated as high as 50,000,000 feet a day, and the Dead Horse Coulee No. 2 got traces of oil, but ran into salt water.

In the Medicine Hat Field, Roth Syndicate's No. 1 deep test is reported down 3,311 feet and is going down with a 6⅝-inch open hole, pending arrival of 4,000 feet of 5½-inch casing. The drill is working in a hard limestone. The test is now at a deeper horizon than any of the wells drilling in the Many Island Lake Field and is the deepest test yet drilled in the Medicine Hat area.

Irma-Wainwright

In the Irma-Wainwright Field, east-central Alberta, Edmonton-Wainwright Oils' No. 1, Section 29-45-6w4, is reported drilling at 1,325 feet and expects to reach the oil sands in another 900 feet of drilling. The drillers have been making from 145 to 160 feet a day, though considerably hampered by the freezing of the piping at night. Maple Leaf Oil & Gas Co.'s No. 2, Section 19-45-8w4, is reported rigging up. Wainwright-Dome Oils, Ltd., has spotted a test on LSD 7, Section 3-45-6w4. Interior Oil Co., Section 36-44-7w4, is at 1,500 feet. Western Consolidated Oils, Section 20-45-6w4, is resuming at 1,400 feet. Anglo-Alberta Oils, Ltd., has a location in Section 19-45-6w4. British Petroleums, Ltd., is reported rigging up No. 5 test in Section 31-45-6w4. British-Wainwright Oils, Ltd., has a derrick up in Section 22-45-6w4. In the Irma section, Edmonton-Wainwright Oils, Ltd., is reported drilling below 500 feet on Irma Oil Development Co.'s No. 1, Section 28-45-9w4.

Having installed additional equipment for treating gasoline products, the Alberta Refineries, Ltd., plant at Edmonton has resumed operations. The company has a contract from the Canadian National Railways for all the fuel oil that can be produced from Wainwright crude for use in the engines on the western system.

A posible new area of development in eastern Alberta and western Saskatchewan is indicated by recent heavy filings by Leo Miller and N. J. McDonald in behalf of a Calgary syndicate in the area between Ribstone and Lloydminster. It is reported that upwards of 13,000 acres have been blanketed. Dr. G. S. Hume, of the Geological Survey of Canada, last year mapped a new oil structure, termed the Ribstone-Blackfoot structure, in this area, which he indicates is more promising than the Battle River-Wainwright structure and which has not yet been definitely tested for oil or gas.

In northern Alberta the A. B. C. Oil Co. has been reorganized at Vancouver, B. C., to resume work in the Peace River Field. This field, which was very active about 1917, has since been quiescent. The first well drilled by the McArthur syndicate got a 70-foot oil sand at 960 feet and some six or eight wells drilled at various points below Peace River town encountered similar showings. In the efforts to drill deeper most of these tests were lost owing to water troubles, heavy flows of water and gas being encountered almost simultaneously just below the Cretaceous formation. H. L. Williams and associates had some success in getting below the big water into the Devonian limestone, but apparently failed to secure commercial production. The A. B. C. Oil Co. has a drilling outfit on the ground and a test down about 100 feet and is getting ready to resume after the winter shutdown.

Ontario Fields

In the Ontario fields, the Union Natural Gas Co.'s No. 20 deep test in Dover Township, Kent County, is drilling. Kizer Brothers are resuming work on the Golchester Oil & Gas Co.'s deep test north of Thamesville, in Zone Township, Kent County. This is down about 2,240 feet and will be carried to the granite. In Lambton County, Senator Michener of Toronto and W. J. Hussey of Petrolia have leased several hundred acres on the Petrolia & Enniskillen town line and will drill for oil. The Petrolia town council, which owns a pumping property on the Blind Line, has, after a period of municipal operation, determined to let the property by tender.

SOUTHWEST TEXAS

(Continued from Page 36)

dry at 3,402 feet, pulled the liner last week and resumed drilling and are below 3,420 feet and in a sand. Magnolia company's No. 1 Speer is drilling at 2,180 feet; J. K. Hughes' No. 1 Peters is drilling at 2,560 feet; Grayburg company's No. 1 Halff, drilling at 2,706 feet; H. A. Speer's No. 1 Lizzie Singer, drilling at 205 feet; Humble company's No. 4 Schallert, on the Palangana salt dome northwest of the Piedras Pintas, is drilling at 2,441 feet after changing to 112-foot derrick. Light derrick was put up to test whether the location was on the salt dome. It missed the salt encountered in other tests at 800 to 1,200 feet and so changed to big derrick and heavy rig. Simms Oil Co.'s No. 1 Schallert, on the north slope of the Palangana salt dome, on Survey 241, is rigging up. Duggan & Maurer, on the Willie Hoffman farm, have been drilling for a few days. Tom Graham, in the northeast part of the county, on Survey No. 571, in No. 1 Bell is drilling at 1,200 feet. Gordon, Folwell & Dickinson's wildcat test on Duval Land Co.'s ranch in the western part of the county has been abandoned at 3,501 feet. Simms Oil Co.'s No. 1 Bennett, 6 miles northeast of the Cole gas field, is in sandy shale at 1,920 feet.

In the Cole gas field in Duval County Houston Oil Co. tested its No. 1 Benavides, which swabbed 50 bbls. an hour, but does not flow. Total depth 1,787 feet. No. 2, one location to the east, is setting up and will spud in within a few days. Killam's No. 4 Benavides has topped the sand at 1,745 feet and total depth is 1,760 feet. It was completed as a dry gas well. No. 5 is setting up in the north half of Block 8 of Section 10. Cole Petroleum Co. set casing at 1,785 feet in No. 17 Benavides, which is less than a quarter of a mile due south of Cin-Tex Petroleum Co.'s discovery oil well. Cole Petroleum Co.'s No. 15 has set casing at 1,669 feet, total depth 1,672 feet, and is nearly ready to test; and No. 16 has a derrick up on Block 10 of Section 16. Keeling and others, with derrick up, is standing. Moody-Seagraves, after selling a half interest to Colonel Humphreys in their 400 acres in the Cin-Tex area, are starting the second test located in Block 5 of Section 10. Sun Oil Co. is setting up on its first test in the Cole Field one-half mile southwest of the Cin-Tex discovery well.

Webb County

On the Webb County side of the Cole gas field, Cole Petroleum Co. has set casing for another test at 2,685 feet in No. 10 Benavides on Block 5 of Section 3 is setting a full string of 4½-inch casing.

Elsewhere in Webb County Associated Oil Co.'s No. 1 Webster is fishing for liner at 2,110 feet. Moody-Seagraves' No. 2 de la Garza is shut down at 2,250 feet in the Carolina-Texas gas field. Other tests in the Carolina-Texas gas field and that general area are Richison's No. 1 Billings, shut down at 1,250 feet; Snowden & McSweeney's No. 2 de la Garza, completed as a gas well; Roark and others' No. 1 de la Garza pulled in derrick at 2,615 feet and is shut down; Wench and others' No. 1 Billings, drilling in sandy shale at 2,360 feet; Morgan Oil Corp., in shale at 2,300 feet in No. 1 de la Garza. United States Gas & Oil Co., shut down at 2,100 feet in No. 1 Benavides. Sterling & Suladie completed

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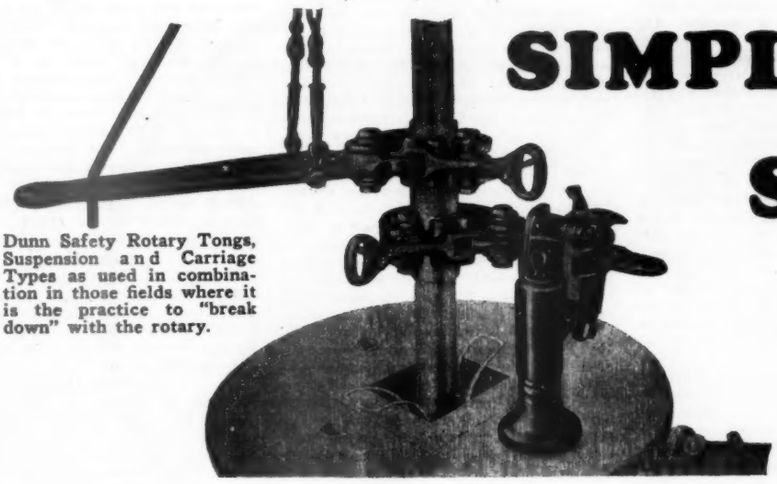

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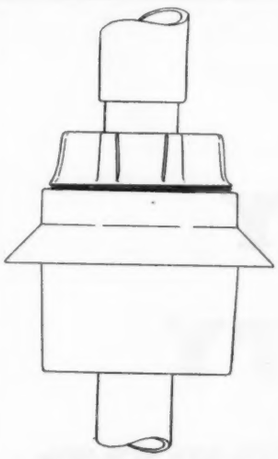

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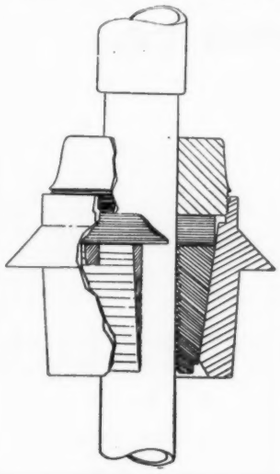

a gas well at 2,065 feet in No. 1 Webster.

In the Mirando Pool, Crown Central Petroleum Corp. is drilling in No. 5 Bruni with a rig; No. 6 has been completed as a gas well at 1,731 feet. Edgington has sold Blocks 75 and 76 of the Edgington subdivision of the Puig Brothers survey to the Three Rivers Oil Co. for $50,000 cash and $100,000 to be paid in oil, with two wells completed on Block 75, and the third ready to complete. The two wells made 150 bbls. each on the pump. Laredo Oil Co. has abandoned No. 10 Killam, north of Mirando City, at 1,700 feet, dry. Rydal-Crown Central are starting offset wells to two new producing centers in the area south of the Edgington subdivision of the Puig Brothers ranch. One test is being spudded in in the southwest corner of the east half of Block 16 of the Bruni land and is a north offset to the Sun company's gas well. Ball brought in an oil well 300 feet west of the Sun company gasser. Rydal-Crown Central are starting another test in the northeast corner of Block 17, which is a west offset to the oil well brought in by Neal, Lynne & Ramsland in the northwest corner of Block 18.

Binney and others are shut down in No. 5 Bruni at 2,345 feet in Block 60, 5 miles east of production. Hale and others have a derrick erected for No. 1 Coe, on Block 51, 2 miles to the east.

Jim Hogg County

Moody-Seagraves completed their first test in the Randado district on the south line of Survey 291 and are now pumping 75 bbls. daily from a depth of 1,275 feet. The Pippin discovery well, in the center of the survey, one-half mile to the north, produced at 1,268 feet. The Magnolia company is having some water trouble in No. 1 on Block 10 of Survey 291 at 1,290 feet, located a little to the northeast of the Pippin well. The hole stood 900 feet in oil and looks like a well. Considerable additional drilling will take place in the Randado district at once, due to Moody-Seagraves getting a good well. Several tests heretofore in that district failed to pick up the trend of the production.

In the Henne, Winch & Fariss Pool, Killam's No. 2 Martinez, on Survey 276, is a 60-bbl. pumper at 2,056 feet, and No. 3 is a dry gas well at 2,117 feet. No. 6 is a dry gas well at 2,011 feet, and No. 7 is drilling in at 2,045 feet. Kitselman & St. Albans' No. 25 Holdien was completed as a dry gas well at 2,059 feet, and No. 27 is drilling at 800 feet. Magnolia Petroleum Co.'s No. 11 Martinez is a 60-bbl. pumper at 2,110 feet. Simms Oil Co. is drilling at 2,550 feet in the test on Survey 233, south of Randado, and drilling at 2,020 feet in the No. 1 Jones on Block 52 of the Oscar Thompson land.

Bastrop County

Reiter-Foster Oil Corp. is preparing to start two wildcat tests in southwestern Bastrop, where there seems likelihood of being a Serpentine plug. Alexander & Lyles are preparing to start a test in the Cedar Creek territory of Bastrop County near the old Dixie test. Mahone & Wilford have secured a permit to drill the No. 1 D. B. Dunk, in northern Bastrop County, in the J. Black survey, 150 feet from the north and west lines. Andrews Petroleum Co.'s No. 1 Brundage, east of Elgin, is drilling in Georgetown at 2,865 feet and has presumably been in Georgetown for about 120 feet.

Bee County

Pittsburgh Oil Development Co. (Benedum & Trees) has accepted title to a tract of 10,000 acres of leases in northwestern Bee County, near Mineral, and are preparing to start a test which will be the fourth of 10 tests they have announced to be made in South Texas. Moody-Seagraves-W. E. Clark's No. 1 Tom Welder, east of Beeville, is showing a little oil. Operators have been working with the well for some weeks trying to complete a gasser. W. G. Clark has torn down the derrick on No. 1 Scott, north of Beeville, and is moving it 2 miles east to a new location.

Brewster County

Green Valley Oil Co., working in western Brewster County for some months, has been given permit to drill No. 4 J. P. Wilson, the location being 300 feet from the north and west lines of Section 5, Block 212, T. & St. L. survey. The first well drilled on the Wilson tract three or four years ago pumped out several hundred barrels of oil before the hole was finally lost.

Bexar County

Humble Oil & Refining Co. has completed a block of acreage in eastern Bexar County, near the Cibolo River, and is erecting derrick, and L. W. Stieren and associates have also completed a block, and each will start wildcat tests soon. The territory has been pretty thoroughly gone over by geologists in recent years and in a general way has been approved by all of them. In the Southton Field, George E. Ginter and others on Cotton Mill lease are driling at about 1,700 feet on a deep test in the shallow field. John Tray Oil Co. is setting casing at the shallow depth of 650 feet on its first test in that field. On the west side of the San Antonio River, in the same field, on the Yturri lease, where 50 or more shallow wells have been developed by the Ren-Tex company, the old deep test drilled on the lease to about 3,800 or 4,000 feet by Senator Reynolds of New York recently made a head of about 6 bbls. or more of oil. Utah Texas, on the Ivan Vick tract, is drilling at a little below 2,500 feet in southern Bexar County.

Brooks County

Pittsburgh Oil Development Co. (Benedum & Trees) is rigging up on the Wormser ranch in Brooks County, 21 miles west of Falfurrias.

Caldwell County

Sun Oil Co., on the Cardwell, a wildcat test, north of Lockhart in Caldwell County, is drilling at 1,200 feet. Murchison & Fain-E. L. Smith, Burdette Townsite, wildcat test northeast of the Luling Field, has been abandoned at around 2,400 feet in the Edwards, dry. The rig will be moved to the location, several miles farther northeast and a little south of Dale, for a test on the A. J. Miers farm, and a little north of where Reiter-Roster has just abandoned its Brown farm well, which got good showings of oil in Serpentine and Edwards but not enough to make a well. Major companies are playing this territory pretty strong, and the abandoned wells have added to the interest rather than detracted. Reiter-Foster is rigging up on the Gomillion tract north of the Lytton Springs Field, several miles away from the test it has just abandoned.

Fayette County

Red Bank Oil Co. of Tulsa is drilling at about 1,800 feet in the Steinhauser farm test north of Flatonia in Fayette County. O. W. Killam's wildcat derrick north of Schulenberg on the Koether farm, and several miles east of Red Bank, was hit by lightning. About 1,800 feet of drill stem dropped in the hole, total depth of which is about 2,400 feet. It is being rebuilt. McClanahan & Stubs have abandoned their test south of Muldoon at 2,200 feet, and the derrick is being torn down and will be moved to a location 3 miles east.

Gonzales County

Sun Oil Co. is moving the rig from No. 1 Nelson, a wildcat test in Gonzales County southwest of the town of Gonzales, to a new location on the same farm 1,400 feet southeast of the first. L. L. Jones, who got a showing of oil at 530 feet one-half mile south of Waelder, in northern Gonzales County, is arranging to start a deep test 4 miles to the east. Joe Bruner, on the Sweet farm, a little northeast of Waelder, is drilling at 2,400 feet and had a gas blowout at about 1,800 feet. F. E. Rue, due north of Waelder in Gonzales, on the McVea farm, is shut down at about 2,000 feet.

Guadalupe County

Payne & Bond have started their wildcat test in the New Berlin territory in western Guadalupe, and Humble has started its Yturri farm well in Bexar County, just across the Cibolo River to the west, and location for J. M. Davis' test will be made this week on the Guadalupe County side of the Cibolo. Marland is still coredrilling in Bexar. The New Berlin district takes territory in eastern Bexar and western Guadalupe, and last year it got quite a play by major companies. Dixie company drilled on the Koepp farm and the well is seeping a little oil now, though shut down for more than a year. McClanahan & Crouch, on the Lenz well to the south, got a showing, but abandoned the well. Between these will be the test of J. M. Davis. South of the Marland block on a structure mapped out by Dixie company geologists Gerrells and Bleakie completed a well at 1,430 feet, 1 mile south of Adkins, that is claimed to be a small pumper, but has been standing. The territory has had many oil showings in tests drilled. This summer is to see the whole territory drilled again. Atlantic, Roxana and various others of the major companies have been interested in past tests.

LaSalle County

DeLange-Eiser Development Co. hauled sufficient water to spud in the Dobie ranch well, in the southeast corner of LaSalle County, and is drilling and intending to set the first casing (12½-inch) at 500 feet.

Live Oak County

George B. Pickett is drilling at 860 feet in lime shale in Live Oak, 1 mile west of Kitty, in No. 2 George West. No. 1 has been shut down at 2,552 feet to await the drilling of No. 2.

Medina County

Henderson & Holden's gas well, running wild in Medina, cemented between the 8-inch and 10-inch casing and up the outside of the 10-inch, and the valve is to be closed this week. It is believed it will hold. There is 290 feet of 10-inch and 485 feet of 8-inch casing in the hole, and the total depth is 903 feet. The well gauged nearly 10,000,000 feet of gas.

McMullen County

Eugene Sights' test on the Franklin ranch in McMullen County, north of Tilden, is shut down at 1,620 feet waiting for the roads to dry to haul casing. Moody-Seagraves' No. 4 Jacobs, which tested dry at 1,250 feet, is drilling deeper. A bigger type rig has been assembled at Calliham and will be put on the well to make a deep test of it.

Nueces County

Givans' No. 1 Allen at Calallen, in Nueces County, has the tools back in the hole and is drilling out the plugs and will carry the hole to 4,500 feet. It plugged back from 4,056 to 3,200 feet to make a test which was never completed. The Texas Company, down the Nueces River toward the coast from the Givan test, is drilling at around 4,000 feet in shale.

Starr County

Dauchy & Bryant are drilling at 1,900 feet in the Kelsey tract test in Starr County on Survey 125, and Killam is waiting for water line on the Guerra ranch test on Survey 43.

Terrell County

E. T. Williams has erected a big type standard derrick and rig in Terrell County, at Sanderson, for a deep test. Howard Smith and others from California are arranging to start a test on acreage out of the Julian Bassett 400,000-acre ranch in Terrell County. The rig is expected to be moved in soon.

Travis County

Gulf Production Co. has spudded in on the Parsons farm, south of where the Humble company recently found Serpentine with a light showing of oil, in northeastern Travis County, and has a tentative location for another test to the west of the Humble company's four tests. The locality has been looking good. The Gulf company has held its acreage for some time. Humble found the Serpentine, but not enough of it to make a well.

GULF COAST

(Continued from Page 40)

acres, located 7 miles north of the town of Waller and about 40 miles northwest of Houston. The equipment is such that a deep test can be drilled, if necessary.

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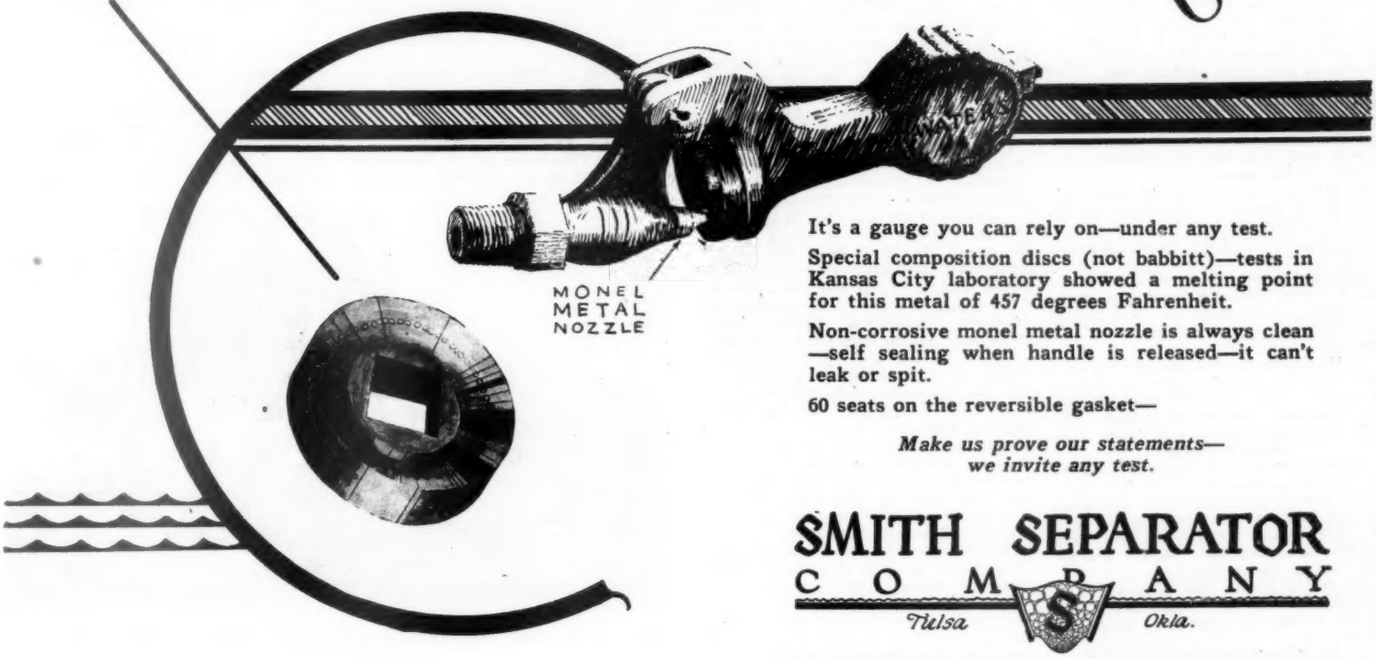

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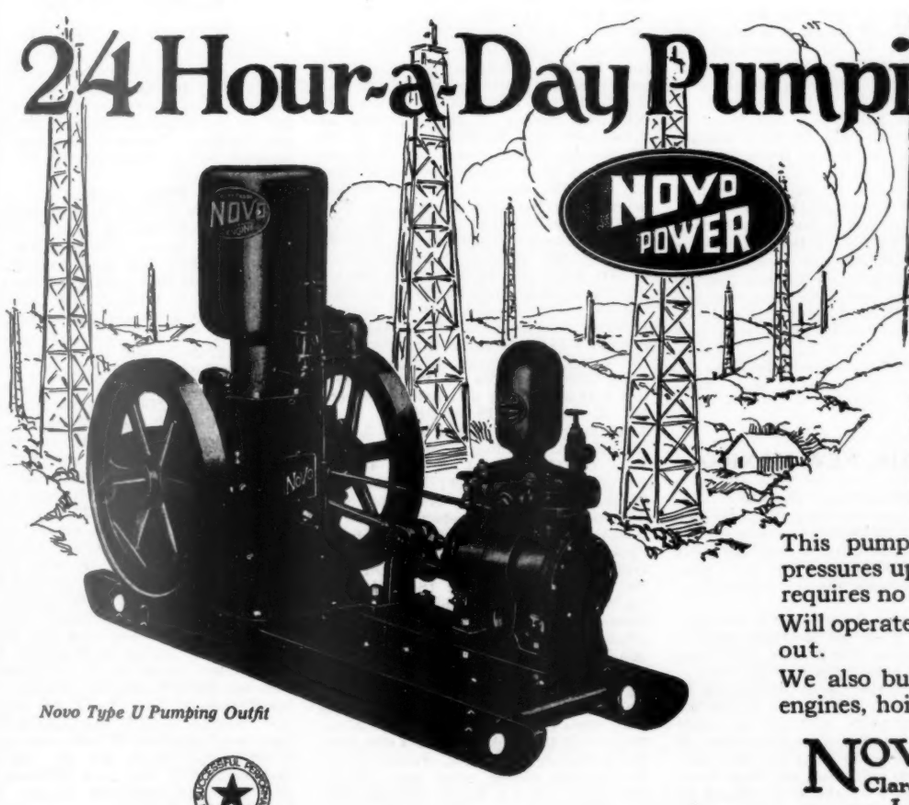

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George Newman has a location near Pattison.

In Wharton County the Gulf Production Co.'s No. 1 Borden, near Mackay, is drilling around 3,765 feet. J. W. Rich's No. 1 Brown, 12 miles west of Boling Pool, is around 960 feet and No. 2 Dennis is at 235 feet. The Humphrey Corp. has a location for No. 1 Dennis. The Houston-Gulf Gas Co.'s No. 1 Woodbine is at 480 feet.

In Washington County S. H. Spangler's No. 1 Regeine, 6 miles northwest of Burton, is shut down at 1,200 feet.

In Victoria County, the Houston Oil Co.'s No. 1 O'Connor ranch, is in a gas sand at 3,128 feet. The test was started last December. A gas sand was found around 2,600 feet but the showing was so light it was passed up.

In Refugio County the Houston Oil Co.'s No. 1 Thomas O'Connor is also in a gas sand at 3,490 feet. Same company is starting No. 5 Rook in the Refugio Field.

In Goliad County the Houston Oil Co.'s No. 1 Pettus, 10 miles west of Goliad, is drilling around 2,895 feet and No. 1 Parks, 8 miles east of Goliad, is at 2,355 feet.

In Matagorda County the Gulf Production Co.'s No. 4 Craig, Hawkins Dome, is rigging with a derrick standing for No. 1 Sanborn. The Shepherd Mound Oil Co's No. 2 Hawkins is shut down.

South Louisiana

At Hackberry Dome in Cameron Parish the Yount-Lee Oil Co.'s No. 2 in Black Lake is below 5,280 feet ,the deepest test in the south Louisiana districts. No. 3 is around 3,240 feet. The Pure Oil Co. is moving in a rig for another deep test at Sweet Lake.

In Iberia Parish the United Oil & Gas Syndicate's No. 1 Salt Mine, Jefferson Island, is drilling in gumbo at 3,790 feet.

In St. Mary's Parish the Rio Bravo Oil Co.'s No. 1 Glenwild is fishing at 3,525 feet.

In St. Martin Parish the Rycade Petroleum Corp.'s No. 1 Atchafala is rigging up.

MEXICAN FIELDS

(Continued from Page 44)

shale, and No. 22 Barberena is at 1,300 feet in gray lime. Mordelo Vincent's No. 1, Pazzi, is in shale at 300 feet, and his No. 1 Maza, in Tamante, is in shale at 150 feet. Cia. Explotadora de Riquezas Naturales' No. 1 Riqueza is Buena Vista is down 760 feet in shale; No. 4, same place, is rigging. D. A. Williamson's No. 1, Tampuche, cemented 8-inch casing at 1,538 feet in gray lime.

In Cacalilao

In the Cacalilao sector of the northern fields drilling operations follow: International Petroleum Co.'s operations in Lot 5: No. 266 is in pink shale at 298 feet; Nos. 267 and 268 have each cemented 8-inch in the San Felipe at 1,200 feet. Mexican Sinclair Petroleum Corp.'s No. 39-C, Lot 3, is rigging. Transcontinental Petroleum Co.'s operations in Lot 4: No. 200 is in lime at 2,200 feet; No. 237 rigging; Nos. 253 and 255 each in shale at 825 and 275 feet, respectively; No. 256 rigging; No. 261 cemented 8-inch in the San Felipe at 1,275 feet; No. 267 is in gray lime at 1,750 feet.

Ebano Sector

In the Ebano sector of the northern fields, Mexican Petroleum Co.'s extensive operations follow: No. 59 Chapacao is in hard gray lime at 1,925 feet; in its Chijol the following resolves itself: No. 42 is in lime with the hole full of oil and water at 2,203 feet; No. 45 is in blue shale at 320 feet; No. 53 rigging; No. 55 cemented 8-inch in gray lime at 1,070 feet. In the Silva, its No. 5 is in gray lime with a showing of oil at 1,715 feet. In the La Dicha the following obtains: No. 69 is in hard gray lime at 1,425 feet; No. 70 cemented 8-inch in the San Felipe at 1,210 feet; Nos. 76 and 82 are each in white lime at 2,168 and 1,430 feet, respectively; No. 84 is in lime shells and shale at 1,240 feet; No. 85 is in hard shells with a showing of oil at 1,070 feet; No. 87 rigging. In its Midway, its No. 9 cemented 8-inch in gray lime at 1,250 feet; No. 10 is drilling in gray lime with a showing of oil and gas at 1,450 feet; No. 11 is in blue shale at 164 feet. In its San Pedro, its No. 17 cemented 8-inch in blue shale at 1,300 feet; No. 18 is in the San Felipe with a showing of oil at 1,435 feet; No. 19 is in gray lime at 1,360 feet, and No. 20 is in gray shale at 824 feet.

National Lines, in its Chapacao right of way, through the Ebano district, has its No. 32 in gray lime at 1,745 feet; its No. 33 is in gray shale at 700 feet; No. 34 cemented 8-inch at 1,254 feet in gray lime; No. 35 rigging; No. 38 cemented 8-inch at 230 feet in gray lime, and No. 39 is in hard gray shale at 1,040 feet.

South Fields

In the south fields, Huasteca Petroleum Co.'s operations are best described as follows: No. 65 Cerro Azul is in brown shale at 1,525 feet; No. 71 is in the same formation at 1,220 feet; No. 75 is in dark blue shale at 695 feet. In Tierra Blanca, Huasteca's No. 58 is in brown lime at 2,250 feet; No. 62 rigging; No. 63 in brown shale at 1,415 feet; Nos. 64 and 67 are each in brown shale at 1,100 and 1,800 feet, respectively. Up in Casiano, Huasteca's No. 16 is in gumbo and shale at 2,003 feet; and down in Chapopote Nunez it is preparing to drill No. 12. Cia. Pet. Financiera's No. 29 Chiconcillo is in shale at 475 feet. Mexican Eagle Oil Co., Ltd.'s No. 33 Cerro Veijo is in gray lime at 2,107 feet; No. 35 in gray shale at 1,800 feet and No. 38 there is in a similar formation at 400 feet. Penn Mex Fuel Co.'s No. 3 La Pita is in hard gray shale and shells at 3,791 feet.

Northern Miscellany

The scattered tests of the northern fields are epitomized as follows: American International Fuel Co.'s No. 26 Los Esteros is in gray lime at 1,138 feet. In the Corcovado La Corona Petroleum Co.'s No. 20, Lot 6, is in gray lime at 2,311 feet; No. 21 will recement 8-inch casing at 1,275 feet in the San Felipe and No. 22 is at 1,800 feet in the San Felipe. Mexican Gulf Oil Co.'s No. 34 Chapacao (Corcovado) is testing for possible commercial production in gray lime at 1,758 feet, and No. 37 rigging. Transcontinental Petroleum Co.'s No. 27, Lot 6, is in the San Felipe with small shows of oil at 1,660 feet.

In the Marland Field, Cia. Pet. Franco Espanola's No. 44 Limon is in gray lime at 2,060 feet; No. 45 cemented 10-inch in shells at 1,200 feet; No. 47 is in lime at 1,680 feet; No. 49 is in gray lime at 1,507 feet; No. 50 is in blue shale at 920 feet, and No. 51 is a derrick.

In the Rayon, India Oil Co.'s wildcat, just north of the Tamesi River, is drilling at 600 feet in gray shale.

In Tancome, in the Temposl Valley, International Petroleum Co.'s No. 1 Tancome is in the San Felipe at 5,033 feet.

In Topila, La Corona Petroleum Co. is preparing to drill two more tests, Nos. 20 and 21. Material is being moved to location at this time. The Texas Company's No. 4 (San Martin) Paciencia de Aguacate cemented 8-inch in gray lime at 1,642 feet.

In Caracol, Venable and others' No. 33 is drilling around 800 feet in shale. Mexican Gulf Oil Co.'s No. 6 there is spudding.

ARTESIA, NEW MEXICO

(Continued from Page 38)

well, which was shot from 2,141-60 feet.

In Section 21-18-28, the Dome Oil Co. is drilling in their No. 5, the sand being topped at 2,100 feet. This well gives indication of being the best producer on this lease.

The Frontier Petroleum Co. is shooting its No. 2 on the McQuigg Brothers lease in Section 4-18-28, the sand being encountered from 2,275 to 2,307 feet.

The Picher Oil Co. is drilling in its No. 2 on the Cronin permit, in the SE of Section 12-18-28, with the log checking closely to No. 1, which after 15 months continues to pump 35 bbls. daily.

Making 200 bbls. flush the Twin Lakes Oil Co.'s No. 7 on the west side of the SW of Section 28-18-28, is now being cleaned out, following a shot of 140 quarts from 1,992-2,025 feet. The state land commissioner and party were interested spectators to the bringing in of this well.

A good showing has been picked up in the Dave Compton No. 2 on the Mann permit in Section 3-18-27, at a depth of 406 feet. No effort will be made to develop this sand until the hole has been drilled a depth of 2,000 feet.

Failing to find the deep sand has caused the Empire Oil & Gas Co. to plug back its No. 1 wildcat in Section 31-25-27, southwest of Carlsbad, it being the intention to shoot the oil sand encountered at 2,300 feet. Drilling into a black shale formation below 3,000 feet caused this company to give up the hope of a deeper pay.

Drilling Report

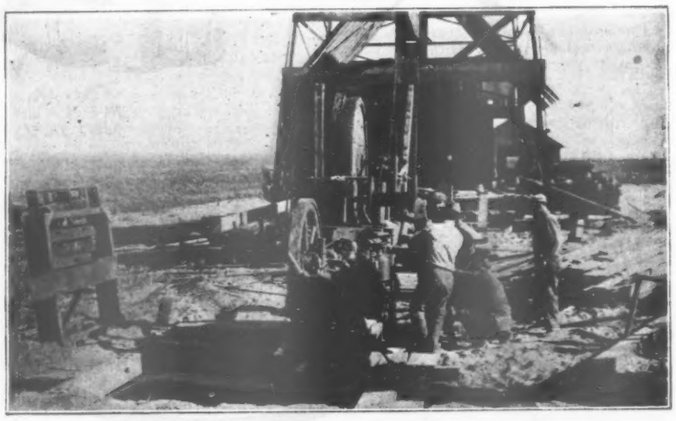
Braden Trueshell's No. 1 Vandagriff, NE cor. SE Section 5-17-32, sidetracking bit; Colorado Drilling Co.'s No. 1 Irvin, SE SE Section 8-16-27, fishing for tools; Compton's No. 2 Mann permit, Section 3-18-27, drilling at 600 feet, oil showing at 406 feet; Danciger Oil & Refining Co.'s No. 2 Beeson, Section 18-18-28, shut down, broken engine; No. 2 Ragsdale, Section 18-18-28, location made; Dome Oil Co.'s No. 5, SW cor. SE NE, Section 17-18-28, drilling in; Dome Oil Co.'s No. 4, Section 21-18-28, on production; Empire Gas & Fuel Co.'s Section 31-24-27, plugging back to 2,300 feet, will shoot sand encountered at this depth; Flynn, Welch & Yates' No. 30, NE SE, Section 21-18-28, drilling at 2,100 feet; No. 39, SE, Section 21-18-28, cleaning out after shot; No. 3 Keyes, Section 21-18-28, cleaning out after shot; No. 40, SE, Section 29-18-28, drilling below 1,600 feet; No. 41, SW cor. NW SW, Section 3-18-28, spudding in; No. 42, same section, spudding in; No. 43, SE cor. NE, Section 28-18-28, drilling at 500 feet; No. 44, NE NW, Section 9-18-28, drilling below 600 feet; Fletcher Oil Co., SW, Section 5-19-28, fishing; Frontier Petroleum Co.'s No. 2 McQuigg, Section 4-18-28, cleaning out after shot; No. 4 McQuigg, Section 4-18-28, drilling below 1,525 feet; No. 10 McQuigg, Section 4-18-28, rigging up; Levers Carper's No. 2, Section 3-18-28, drilling in at 2,370 feet; Levers Wilson's No. 5, Section 18-18-28, drilling below 1,200 feet; Mesa Oil Co.'s No. 1, Section 4-19-28, drilling below 3,050 feet; Maljamar Oil & Gas Corp.'s No. 15, NW cor. NW, Section 28-18-28, on production; No. 16, same section, on production; McFrederick Eppenauer's No. 1, Section 15-19-25, drilling below 3,250 feet; Ohio Oil Co.'s No. 1 Edgerton, Section 18-18-29, drilling below 2,600 feet; Ohio Oil Co.-New States' No. 1, Section 8-18-28, drilling below 2,370 feet; No. 9 New States, Section 4-18-28, drilling below 3,460 feet; No. 10 New States, Section 4-18-28, drilling at 1,780 feet; Ohio Oil Co.'s No. 1 Marion, SE NE, Section 5-18-28, waiting shot; Ohio Oil Co.'s No. 1 Toomie Allen, Section 22-18-38, drilling at 1,600 feet; No. 1 Toomie Allen, SE, Section 28-18-28, running tubing after shot; Picher Oil & Gas Corp.'s No. 2, SE SE, Section 12-18-17, drilling in; A. H. Ramage's No. 1, Section 2-18-28, drilling below 2,175 feet; Shaw & Rathke's No. 1 Danciger, Section 28-18-28, drilling around 3,000 feet; Snowden & McSweeney's No. 3, Section 33-18-28, drilling below 2,600 feet; Swartz, Compton & Eaton's No. 1 Brainard permit, SW, Section 5-18-27, drilling at 500 feet; The Texas Company's No. 4, Section 5-18-28, on production; Twin Lakes Oil Co.'s No. 7, Section 28-18-28, cleaning out after shot; Wade & Bujac's No. 1 Goodale, NW NW, Section 19-18-28, drilling below 900 feet, oil showing at 775 feet.

Chaves County

Arkansas Gas & Fuel Co.'s No. 1 Manning Dome, SE cor. Section 14-15-17, fishing for dropped pipe.

Lea County

Maljamar Oil & Gas Corp.'s No. 1 Government permit, NE Section 21-17-32, running 3,000 feet 8¼-inch casing; Maljamar's No. 1 Grace Mitchell permit, SW cor. Section 5-17-32, drilling below 300 feet; Maljamar's No. 1 S. Beardsley permit, NE cor. Section 15-17-32, location; Maljamar's No. 1 Pearsall permit, NE cor. Section 33-17-32, drilling below 300 feet; Ross' No. 1, Section 27-10-32, drilling below 2,150 feet.



Maljamar Oil & Gas Corp.'s wildcat which recently opened the Maljamar Pool, Lea County, N. Mex.

KANSAS FIELDS

(Continued from Page 34)

sand 2,132-37 feet, with 10,000,000 feet of gas. It is shut in and not completed.

Marion County

Sheedy and others are drilling at 750 feet in No. 2 Jones, NE cor. NW, Section 24-21-4. Cameron Brothers have spudded No. 1 Galbach, SW cor. SW, Section 1-22-3.

Butler County

Templeman & Fanz have spudded No. 1, NE cor. SW, Section 30-23-7. Connell and others' No. 2, NE cor. NW SW, Section 27-26-7, had sand 2,141-52 feet, and made 180 bbls. naturally; the rig is up for No. 3 Wilhite, NW cor. SW, Section 27-26-7. White Eagle Oil Co. is rigging up No. 3 Wilhite, NE cor. SW, Section 27-26-7; and the rig is up for No. 4 Wilhite, SE cor. NE SW, Section 27-26-7. W. C. Hoyt's No. 1, SW cor. SE, Section 8-27-6, had sand 3,122-26 feet, and the well made 30 bbls. naturally. Phillips Petroleum Co. has the rig up for No. 1 Tatem, SW cor. NW, Section 9-27-6. Flack and others have completed No. 3, NW cor. SW SE, Section 22-27-7. Sand was 2,715-25 feet, and the well was shot with 50 quarts and is making 200 bbls. Amerada Petroleum Corp.'s No. 1, NE cor. SE NW, Section 27-27-7, had sand 2,730-52 feet, and made 100 bbls. after a shot of 50 quarts; No. 3, SW cor. SE NW, Section 27-27-7, had sand 2,726-59 feet, and was flowing 100 bbls. after a shot of 80 quarts. Dixie Oil Co. has rigged up No. 2 Truesdale, SW cor. SE SW, Section 27-27-7. Phillips Petroleum Co.'s No. 2, SE cor. NE NW, Section 27-27-7, had sand 2,737-67 feet, and is good for 75 bbls. after a shot of 80 quarts; No. 3, NW cor. NE NW, Section 27-27-7, had sand 2,733-64 feet, and was shot with 120 quarts. It is good for 300 bbls. Greenland Oil Co.'s No. 1-A, SE cor. SE, Section 28-27-7, is spudded; and No. 2, SW cor. SE SE,

(Continued on Page 135)

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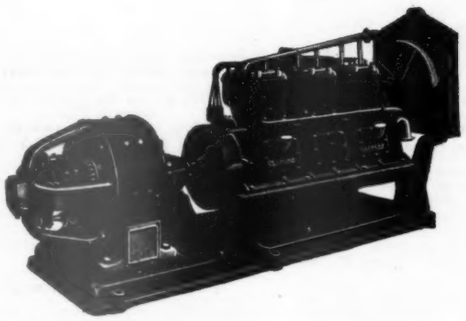

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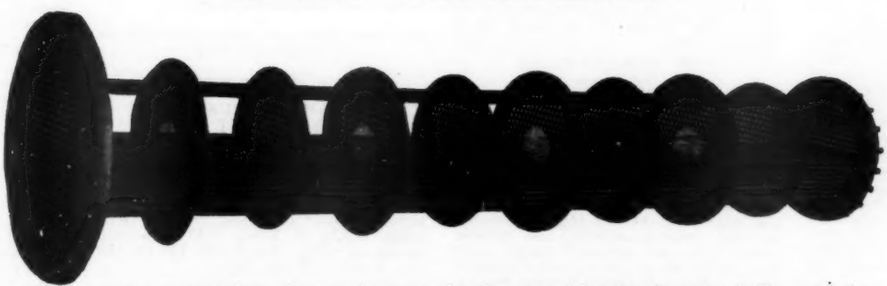

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Can furnish practically proven leases in Artesia Field, Eddy County. Also other tracts in Eddy, Chaves and Lea Counties. Particulars on request.

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1114 Colcord Bldg., Oklahoma City, Okla.

FOR SALE—Upton County oil leases near two drilling wells. Well located geologically in trend of production. Will divide 6,000 acres at $5 an acre for quick sales. Address Box 126, Best, Texas.

800 ACRES in Warren County for an offset well, about 2 miles from production. One well drilling on opposite side of block about 1½ miles away. Two sands about 600 and 1,200 feet deep. Full details furnished responsible parties on request. R. E. Cope, Bowling Green, Ky.

NEW OIL DEVELOPMENT

In Texas County, Oklahoma, one gas well, six wells now driling. This is said to be the biggest wildcat in the state. The eyes of the world are on the Panhandle of Oklahoma and Texas. Send 25 cents for map showing locations of blocks, wells, checkerboarding. Oil leases and royalties for sale.

THE GUYMON LAND & LOAN CO.
Guymon, Okla.

SMALL PRODUCING property for sale in the Preston Field, Okmulgee, Okla. Address S., 214 Harrison Building, Philadelphia, Pa.

FOR SALE—10,000 acres in LaSalle County, on north line Webb, and in Catulla Dome district. Close to San Antonio and Laredo highway; three water wells on ranch now, plenty water; can be developed at 150 feet; sell in fee or if taken at once will give new 5-year oil and gas lease. Priced low for quick action. W. G. Hicks, Box 91, Laredo, Tex.

230-ACRE LEASE with 150 bbls. production, well equipped with new pumping machinery, in shallow field, Cross Plains, Texas. G. E. Morgan, P. O. Box 55.

WE DELIVER commercial oil leases at wholesale prices. Tell us your wants. Universal Agencies, 634 Moore Bldg., San Antonio, Texas.

2,480 ACRES choice land on structure near Farmington, N. M.; Government lease. Will give half acreage for test well to reliable parties. Viles & Garland, Farmington, N. M.

LEASES—PRODUCTION

WEST TEXAS Marathon Fold oil leases. Personal investments since 1919. Write for data and maps. Paul Konz, P. O. Box 291, Fort Worth, Tex.

HAVE BUYERS for flush or settled production in Oklahoma and North Texas. Vern R. Hartman, P. O. Box 442, Dallas, Tex.

FOR SALE—Lease on 1,000 acres near Peterman's Bend District, Clay County, Tenn., or will make drilling contract to right parties. Only those who want to connect with a good proposition and mean business need answer. Address, 109 West Hickman St., Winchester, Ky.

OIL AND GAS LEASES
Marathon Fold—West Texas

30,000 acres Crockett County, large and small blocks; adjoining big companies; scattered wildcat. Also close-in adjoining World well block.

20,000 acres 10-year leases; low rentals; Terrell County, getting good play. Watch this county! Prices right.

Upton County. Scattered tracts.

60,000 acres one block, southeast Pecos County, on geological formation. Most attractive as to desirability, price and terms.

5,000 acres in Irion County. Ten-year lease; watch the new work here.

7,000 acres Loving County. Ten-year lease; 10-cent rental. Right in line.

Write for prices and maps. Will allow time for geological inspection.

C. W. WEBSTER
W. T. Waggoner Bldg. Ft. Worth, Tex.
Reference: Mercantile Agencies

VERY ATTRACTIVE price, extreme southern Colorado, direct trend Amarillo to great Wyoming fields; 10,000 acres, 5-year 88's, low rentals. Territory geologized by number major companies. Wire or write Canard Petroleum Corp., Las Animas, Colo.

225-250 BARRELS daily settled production, 37-40 gravity crude oil for sale at Prairie prices plus 25 cents per barrel pipe line and loading charge. Will make one or two years sales contract.

FRONTIER OIL CO.
San Antonio, Tex.

FOR SALE—Kiowa County, Kansas, leases. 8,720 acres, Township 30, Range 17w; 1,960 acres, Township 29 and 30, Range 16w. August H. Hoyer, R. R. 2, Canton, Kans.

NEW MEXICO STATE
Oil Leases
For Sale, $1 and Up per Acre
BOX 692, ALBUQUERQUE, N. M.

OPPORTUNITY — Get in before the boom. Ten-inch pipe line opens next month, common carrier Magdalena Valley, Colombia, greatest of oil fields. Can sell or lease part our acreage on strike with adjoining largest producers; astounding facts from world's largest operators in field, huge production and developments. Acreage demand keener every day. Robert Grey, Pres. Anglo-Colombian Oil Co., Box 353, Grand Central Station, New York City.

JUDIO DOME—1,195 acres on south side of Meshack anticline, extending to center of Judio Dome, pipe through property. Cumberland County, Kentucky, shallow field; seven pays from 200 to 1,450 feet. Price $10 per acre; half cash, half oil. Richardson & Goff, Columbia, Ky.

OIL AND GAS LEASE—160 acres in Payne County, Oklahoma; southeast quarter Section 5, Township 19, Range 6. Box 143, Elgin, Kans.

FOR SALE

640 acres full seven-eighths oil leases in Bexar County, Texas, surrounded by major companies in County Blocks 5059-5064-5069-5070-5082-3-7-8-9-5111-5193 and 25 cents per acre rental; extensive core drilling is done by Marland. Reason for selling is I need money in my business. Price $10 per acre. Box B-231, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Leases, production and royalties in Barren County, Kentucky. Shallow drilling, high gravity oil, long life wells. Have some leases adjoining production. Small rentals. L. W. Preston, Glasgow, Ky.

LEASES—PRODUCTION

FOR SALE—Small production, good equipment. Opportunity knocks. Write P. O. Box 185, Springfield, Tenn.

FOR SALE—Leases in the Panhandle oil fields. W. R. McDaniel, 2105 Sixth Ave., Ft. Worth, Texas.

KENTUCKY'S great shallow sand pool in Cumberland County to be extensively drilled this spring and summer. Structures well defined and seven producing formations found from 250 feet to 1,400 feet. Have leases for sale adjoining present producing properties, other leases on drilling proposition. Two Creeks Oil Co., 510 Security Trust, Lexington, Ky.

FOR SALE—290-acre lease, Alluwee Field, Nowata County, 16 producing wells, fully equipped, air pressure being installed on the adjoining lease, wonderful buy, price low. Write, wire, or better come. J. A. Wright, Nowata, Okla.

WILDCAT ACREAGE in Texas Panhandle, $1 to $2 per acre. Dr. W. R. German, Canadian, Texas.

FOR SALE—266 2/3-acre gas and oil lease, proven but undeveloped, 8 miles west of Chanute, M. L. Tebay, 127 N. Forest Ave., Chanute, Kans. Phone 1233.

FOR SALE—Leases and royalties on Reiter-Foster line from Kosse southwest into Milam County. Some choice acreage near point of oil seepage where line crosses Brazos River. Got it or get it. Reference Dunn or Bradstreet. Norton Realty Co., Calvert, Tex. Percy T. Norton, Mgr.

FOUR WELLS—Forty bbls. daily settled, need cleaning. Depth 1,000 feet. Standard, Indiana, price $2.10 per barrel. About half drilled up. Ideal operating conditions. Located Caddo Field, Louisiana. Owner leaving; sell small cash payment, balance oil; take in good rotary rig or income property. P. O. Box 1477, Fort Worth, Texas.

MINERAL LANDS, leases, royalties, maps, geological work done. West Texas only. V. A. Thompson, Pecos, Texas.

ROYALTIES—PRODUCTION

WEST TEXAS

Oil Leases, Royalties and Drilling Blocks Bought and Sold

Write us for information.

J. MORGAN RUSSELL
INVESTMENT CO.
Dept. A
San Angelo, Texas

FOR SALE — Land and royalty, 40 acres improved Okmulgee County, Oklahoma, SW¼ of NW¼ 7-13-14, several producing wells. Box B-205, The Oil and Gas Journal, Tulsa, Okla.

PRODUCING
OIL ROYALTIES

Kansas, Oklahoma, Texas, Louisiana and Arkansas

BOUGHT and SOLD

Inquiries Invited

J. G. REAVES & CO.
Royalty Dealers Exclusively
St. Anthony Hotel
San Antonio, Texas

TEXAS PANHANDLE

Royalties in large or small units to suit any size buyer in fastest growing and most rapid developing oil field in middle west. Write for list of offerings. B. O. Taylor, 306 Blackburn Bldg., Amarillo, Tex.

ROYALTIES—PRODUCTION

F. P. BOWEN
Tonkawa, Oklahoma
Dealer in producing and non-producing royalties, settled or flush production.

WE BUY AND SELL producing oil royalties, both small and large interests. For listings write Hyland & Co., Kennedy Bldg., Tulsa, Okla.

J. F. MARION COMPANY

Magnolia Building
Dallas, Texas
Buys and Sells
Texas Royalties
"Ask Us First"

EQUIPMENT WANTED

We are in the market for
Salvage Pipe
Any amount—Anywhere
ACME PIPE & SUPPLY CO.
Corsicana, Texas

WANTED—To purchase for cash one complete rotary drilling outfit, must have number five Union Tool, 20-inch Johnson or 20-inch Imperial Rotary with heavy draw works. Box B-202, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

JARECKI pipe machine in A-1 condition. Cuts from 2½-inch to 12½-inch. We have 50 sets of dies to go with machine. Will gladly demonstrate.
IMPERIAL PIPE & THREADING CO.
P. O. Box 1231, Wichita Falls, Tex.

1-30 H.P. CRUDE OIL engine—Also rebuilt, some new, pipe machines, machine tools, woodworking machinery, contractors' equipment, motors, etc. Inquiries solicited. Guarantee worth-while savings. A. C. Love Co., Huntington, W. Va.

FOR SALE—Two 85-h.p. Watt Miller direct connected vacuum pumps on foundations; 2½ miles north of Elgin, Kans.
THE ROTH GASOLINE CORP.
Independence, Kans.

FOR SALE

Bucyrus 30-B Diesel driven cat. shovel. Marion 37 electric driven cat. shovel. 100 flat cars, 80,000 cap., 37 feet, like new. A. V. Konsberg, 312 S. Clark St., Chicago, Ill.

We buy and sell
Casing, Line Pipe and Supplies.
Let us figure with you.
LEE MORRISON SUPPLY CO.
Bartlesville, Oklahoma

DRILLING MACHINES FOR SALE

Machines and rigs ranging in sizes from No. 4 Keystone to Standard rigs for sale, also a large stock of drill tools of every size and description. Write or wire us for prices. Sewell Well Co., 1627 Locust St., St. Louis, Mo.

CASING AND LINE PIPE
We buy and sell.
Let us figure with you.
ELLIOTT MACHINE & SUPPLY CO.
Depew, Okla.

FOR SALE

Second-hand pressure stills suitable for storage purposes. Length 30', diameter 10', weight about 27,000 lbs., capacity 18,600 gallons. Steel riveted and welded. Manhole-top 20", end 24", bolted manhole cover. Price $400 each, f.o.b. cars, Neodesha, Kans.
THE STANDARD OIL CO. (Kans.)
Phone 236 Neodesha, Kans.

USED LINE PIPE FOR SALE
35,000 feet 2½-inch
50,000 feet 3 -inch
75,000 feet 4 -inch
50,000 feet 6 -inch
For immediate shipment from our Texas yards.
KEYSTONE PIPE & SUPPLY CO.
315 W. T. Waggoner Bldg.,
Fort Worth, Texas

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

CRAGO CUT GEARS
Worthy of your confidence. General machine work. 1416 Walnut, Kansas City, Mo. Phone Harrison 7660.

FOR SALE
25,000 FEET 6⅝-inch 20-lb. once-run casing, priced right. Wire or phone
DIAMOND PIPE & SUPPLY CO.
Lamar 4947 Fort Worth, Tex.

FOR SALE—REFINERIES

FOR SALE
Complete operating refinery in the heart of Mid-Continent Field with pipe line to high gravity oil field. Well located and good railroad facilities. Capacity 2,500 bbls. For complete information, write Box B-230, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE
Complete 6,000-bbl. refinery, West Tulsa, Okla.; brick and steel construction, with car repair shop and loading rack capacity for 50 cars; total steel storage 430,000 bbls.; 140 acres of fee land and 22 tenant cottages. This refinery can be bought at a low price and on reasonable terms. Box B-225, The Oil and Gas Journal, Tulsa, Okla.

PUBLIC SALE—Interstate Refineries Incorporated, Refinery at Ranger, Tex., April 16. Filling stations and refinery at Kansas City, May 14. For information see James B. Nourse, trustee, 707 Gloyd Bldg., Kansas City, or Fred S. Hudson, trustee, 526 Lathrop Bldg., Kansas City, Mo.

MONEY RAISING

DEPENDABLE
FINANCING SERVICE
Results sure, swift, economical. Employ the One Great Plan—the plan that gets money. Avoid abortive "mail order" and "phony" broker schemes. Describe proposition. Hansel Financing Specialists, 212-GE Earlham St., Pittsburgh, Pa.

RAISE CAPITAL
Through the sale of securities in your corporation. Twenty-five years' experience behind plan.
NORTHCLIFFE CORPORATION
25 West 43rd St., New York, N. Y.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 117 E. 10th, Oklahoma City, Okla.

POSITION WANTED

FIELD MANAGER — Thoroughly trained drilling and production superintendent desires position. Considerable experience in geological and petroleum engineering departments. Graduate engineer. Age 32. Excellent character and references. Box B-234, The Oil and Gas Journal, Tulsa, Okla.

SUPERINTENDENT of power and maintenance, or resident engineer; graduate engineer, with wide experience in steam, electric and gas power and in all kinds of plant maintenance, good reference; can guarantee results. Box B-229, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER and superintendent—Civil engineer graduate, with seven years' construction and executive experience, desires position with large oil or construction company. Best of references. Box B-220, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED lease man desires position with reliable company. A-1 reference. Box B-223, The Oil and Gas Journal, Tulsa, Okla.

PURCHASING AGENT—Also experienced in material and accounting departments. Six years with major company; college education; references. Box B-235, The Oil and Gas Journal, Tulsa, Okla.

DOGS—POULTRY

PEAFOWL pheasants, bantams, pigeons, wild geese, ducks, breeding stock hatching eggs, free circular. John Hass, Bettendorf, Ia.

TRADE CATALOGUES

ELECTRIC generating sets. Standard Turbine Corp., Scio, N. Y., describes in its bulletin No. 5 the small turbo generator sets in sizes from ½ K.W. to 10 K.W.

ADDRESSES WANTED

INFORMATION desired by daughter Ethel of the whereabouts of John H. Williams, driller, formerly employed by Gypsy Oil Co. at Tulsa, Okla. Write Box B-232, The Oil and Gas Journal, Tulsa, Okla.

JOHN WASHINGTON, formerly from Ardmore, Okla., please communicate with Buckley, Webster Bldg., Chicago, Ill.

HELP WANTED

AMERICAN ENGINEERS Service, Pittsburgh, Pa. Require for Eeastern-Western-Southern employment proposals; construction, designing engineers, draftsmen, transitmen, power engineers, chemists. Mechanical-structural draftsmen for every purpose, premium salaries offered.

DESIGNING DRAFTSMEN — Must have oil refinery maintenance and construction, or power plant and general construction experience. Salaries, dependent upon experience, from $200 to $250 per month. Give complete details, experience; education; age; date available and salary expected. Box 788, Wood River, Ill.

A PROFITABLE SIDELINE

For an Oil Field Salesman

If you are traveling oil pipe line companies, oil producers, oil refiners, or oil well supply houses this is an exceptional opportunity to secure a profitable sideline. We can offer a liberal commission for selling a device needed in the oil fields. Easy to sell and with an enormous field. Details by return mail in exchange for confidential personal information about yourself.

THE STATES ENGINEERING CO.
600 E. Lombard Street
Baltimore, Md.

WANTED—By major oil company for work in Gulf Coast area experienced lease man, thoroughly familiar with blocking and with purchasing protection acreage. Also able to handle title cure field work. If application interesting will pay expenses Houston for interview; state salary expected. Box B-233, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION ACCOUNTANT—Man about 30 years old. Must be thoroughly familiar with oil producing from the executive accounting side. Should have ability to analyze financial and cost reports resulting in constructive criticisms regarding physical operations..

Would prefer someone whose experience includes actual field work.

The position is with a large producing and refining company and offers the right man a splendid opportunity to make a real job for himself. Applications should be typed if possible and should give complete information regarding education, experience (including the present employer) and an approximation of the salary desired. All information will be considered confidential and no reference will be approached without the consent of the applicant. Box B-228, The Oil and Gas Journal, Tulsa, Okla.

MORE AVAILABLE

There are other good positions available in the oil industry.

Right now, executives are reading the "Position Wanted" Column hoping to find a man of your qualifications.

Mail your advertisement now for the next weeks issue so that they can get in touch with you.

BUSINESS OPPORTUNITY

TO RAISE COST of drilling offer 12 alternate eighties semi-proven, ¾ mile from good production end of pipe line, same contours, anticline, $20 an acre; buyer gets three offsets. L. R. Carroll, Roundup, Mont.

BUSINESS OPPORTUNITY

ELECTRIC ARC WELDING
Oil pipe line welding by contract.
Williams & Davis Boiler & Welding Co.
2321-23 Live Oak St.
Dallas, Tex.

DRILLING CONTRACTORS—Geologist desires to connect with reliable contractor. Object of drilling tests on large blocks where detailed surveys show good structure. Box B-227, The Oil and Gas Journal, Tulsa, Okla.

WILDCATTERS, ATTENTION
Will exchange large block oil and gas leases on first-class geological structure; natural gas seepage; easy stuff to work; in Polk County, Wisconsin, for test well. Geo. Laskowske, Turtle Lake, Wis.

FOR SALE — Complete carbon black plant, located near Thermopolis, Wyoming. This plant installed at a cost of two to three hundred thousand dollars. Must be sold at once. Write to Nate P. Wilson, 415 Con Roy Bldg., Casper, Wyo.

NET PROFIT OVER 190% ON YOUR BUSINESS 1925

It should do even better this year, we have more customers, friends, confidence and credit. We are increasing our warehouse, yard and trackage facilities. If you have some cash to invest in this well-established industrial business (a Texas corporation controlled by Texas people) where your dollars share equally with ours and should more than double each year, write quick; we will bring the proofs; say how much cash you have ready for investment. Address Box B-209, The Oil and Gas Journal, Tulsa, Okla.

MAY REVOLUTIONIZE the oil business. About 60 per cent of the oil remains in the sand after pumping operations cease to be profitable. This oil is recoverable by the "Lund" modern oil mining method—a unique and practical invention that probably soon will be in operation at hundreds of places in old abandoned oil fields. To help finance the invention I am selling ownership interests at $500 each and the chances for making huge profits on the investment are good. Investigate this. P. H. Lund, Petroleum Engineer, 734 Palace Bldg., Minneapolis, Minn.

9,000 ACRES 5-year oil leases for test well 4,000 feet; only four quarters held out; four eighties within half mile of well; 85 per cent solidly blocked; water plenty; located on railroad; on structure mapped by eight leading geologists. Woods County, Oklahoma. W. A. Clark, Alva, Okla.

PRODUCERS—PUMPERS
Basic Sediment and Cut Oil can be treated at a cost less than one-tenth of 1 cent per barrel, and a saving in most cases as high as 60 per cent in oil reclaimed. Treat tank bottoms, slush pits, etc.

Kleenoil, the same as sold in oil fields at $2 per gallon, can be made at 20 cents per gallon. Any wholesale druggist can furnish the chemical for its manufacture.

No-Para a chemical process for cleaning the sand, tubing, rods or releasing tubing catchers in paraffin or salt wells, can be made at a cost of $10 per shot, generates 140 degrees of heat (the same as sold at $50 per shot); production has been doubled with one-half shot without the use of tools. No trouble to make either of these articles on the lease.

Formula for either, $6. Both for $10. Enclose money order or currency.
OIL RECLAMATION CO.
1715 Georgia St., Los Angeles, Calif.

HAVE TANK CAR marketing business now selling approximately 150 cars per month. Need man and money to increase business which can easily be done with added finances. Would consider an arrangement with large reputable marketer or individual. Box B-222, The Oil and Gas Journal, Tulsa, Okla.

SHALLOW PRODUCTION TO DRILL
Three blocks of acreage, northeast trend, Bush City Field, Anderson and Linn Counties, Kansas. On U. S. Geological Survey. From 50 to 250 bbls. around 600 feet, 36 gravity oil. Will sell or let part on drilling contract. N. E. Hodge, Room 1 Community Bldg., North Kansas City, Mo.

BUSINESS OPPORTUNITY

HAVE FIRST-CLASS rotary rig here and will contract well or lease rig; reference, Citizens State Bank. Address Biggs Brothers, Route No. 1, Luling, Tex.

BUY ROYALTIES on drilling structures. Quick play for profit on small investment. Get on our mailing list. Hyland & Co., Kennedy Bldg., Tulsa, Okla.

LETTERHEADS—PRINTING

CONSUMERS' LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers' Ledgers. Sample forms and quotations on request. First class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

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Before disclosing your invention to anyone send for blank form
Evidence of Conception
Bulletin, "How to Establish Your Rights," and complete information free.
LANCASTER AND ALLWINE
240 Ouray Bldg., Washington, D. C.

PATENT-SENSE — Valuable book (free) for inventors seeking largest deserved profits. References include prominent oil men. Write Lacey & Lacey, 718 F. St., Washington, D. C. Established 1869

ORCHARDS AND FARM LANDS

READ THIS—For sale, 640 acres rich, dark, chocolate soil, in Haskell County, 8 miles from railroad town, 500 acres in cultivation, three wells good water, large surface tank; 8-room 2-story dwelling, large 2-story barn and outbildings, near good school. Price $60 per acre; $7,000 cash, purchaser to assume loan of $7,000, balance to suit. Might take some good trade. Write for full particulars.
P. D. SANDERS
Haskell, Texas

WANTED

WANTED
I would like to buy a royalty interest. Give all information, price, etc., in first letter. M. P. J., The Oil and Gas Journal, Tulsa, Okla.

WANTED—20,000,000 cubic feet gas daily for gasoline and carbon black. Wire or write Box 56, Fairbanks, La.

WANT producing royalties and settled production Oklahoma. Give full particulars first letter. Also consider drilling blocks good geology. No brokers. Write P. O. Box 1382, Oklahoma City, Okla.

WANT several desirable blocks leases for test wells, must have time to check or core drill for structure, prefer Creek, Okmulgee, Okfuskee or Tulsa Counties. Box B-203, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Producing royalties Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

WANTED — Someone to join me in drilling 1,500-foot hole on block of acreage in Miami County, Kansas. Gas now being produced on this block at 424 feet. Box 1, Sainte Marie, Ill.

WANT to turn 10,000-acre block for drilling contract. Solid pool, shallow oil. Fair geology, good mechanical report; in Panhandle Field. Fifty miles of production. Wildcatting much closer. On railroad. W. E. Lilly, Western Oil Exchange, Gage, Okla.

PRODUCTION AND ACREAGE
Am interested in purchase of some production, with a good quantity of acreage for drilling. Roy N. Merryman, Stuebenville, Ohio.

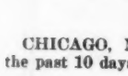
WANTED—A reliable company or oil operator to put down a deep test well on structure in Wilson County, Texas. Inquire by Max Huerlimann, 621 W. 16th St., Kansas City, Mo.

Additional Classified Want Advertisements on Page 134

CHICAGO TENDS TO HIGHER PRICE AFTER WARM WEATHER EXPERIENCE

By J. B. Waldo

CHICAGO, Mar. 27.—The results of the past 10 days have convinced the local trade there is a very large demand for gasoline waiting for the opportunity or perhaps necessity, to make it manifest. This vicinity had a spell of good weather and within 24 hours the orders began to come to the trade here in a very lively fashion. The conclusion was forced on those who doubted that stocks in distributors' hands are light and that the prospect of increased demand would bring them into the market for extensive additions to their supplies.



For fully a week the demand from the territory outside of the immediate vicinity of the city was very good, and then having some stocks either in their tanks or ordered for shipment the demand on the refiners dropped off to a great extent, although even at the close of the week there was quite a bit of business coming along, the late orders being very largely from the smaller jobbers. At the beginning of the week, 50 and 25-car orders were not infrequent but the closing orders were more frequently for one or two cars. It is not believed, however, that the orders placed during the past 10 days provide for any continued supply of gasoline but that each period of good weather will bring a fresh batch of business.

The export demand seems to be much larger, judging by reports made by some leading refinery offices here. Others state their business done so far has not been large but that they have had numerous inquiries. Sales of 64-66 were reported made earlier in the week to several exporting and eastern companies and of the 60-62 towards the close of the week. Sales of the latter were reported at 11½ cents, although the market during the week has not been reported at over 11¼ cents. The statement is made in several places that exporters had waited too long for the lowest price and now were paying more than they would have had to pay if they had bought earlier. This is commonly the fate of the buyer who waits for the lowest possible price.

The market for U. S. Motors gasoline has been 10¼ cents with a decided tendency towards a higher price both on account of the expected increase in the demand and also because of the firm refinery market which has caused some marketers to pay as high as 10¼ cents for cars for early April delivery. Paying 10¼ cents for resale means that the price to the trade must advance to 10½ cents or the gasoline bought at 10⅛ and 10¼ will be sold without any profit. And this is not a condition that will continue. The price to the trade will be advanced or the price by refiners for resale will have to decline and this does not seem to be the probable course of prices at this time. The demand for the higher gravities has not been large for domestic shipment and the strength in these is rather in the export than the domestic sales. Prices have been advanced generally in line with the increase in price for Motor gasoline. There has been little doing here in natural gasoline and the market is very largely unchanged.

Kerosene Stronger

Kerosene was reported as a little stronger by refiners but the local trade state they see no change and that while some kerosene is for some reason being sold at 6⅝ cents the quantity is not great that is going at that price and most of the sellers are firm in their price of 6¾ cents for the 41-43 gravity and state they have no difficulty in securing that price for a good grade of kerosene. The demand continues very fair and promises to continue for some time, according to the views of the local offices who reflect the conditions their men find on the road reported by jobbers in the market.

Furnace Oils Scarce

Refiners have gasoline, kerosene and naphtha to sell as a rule but when it comes to furnace oils the condition is different. A case to the point is that of a large distributor in a nearby city who asked his refiner to ship him his April allotment in March. As the price was a flat one for the season, there was no objection made but when the order was received at the refinery, the reply was sent that they were scraping their tanks for distillate and could not deliver in advance of dates named in contracts, if then, so far were they behind on orders. Later the distributor asked the refinery sales manager here to buy him a number of cars of distillate. The latter stated that he finally succeeded in buying four cars, only one from each seller and that for one car he had to pay 4¾ cents. One marketing organization has been offering some 38-40 distillate at 4⅝ cents as a bargain and only to friends in the trade. It is seldom that any petroleum product is as hard to buy as distillates have been for the past several weeks. Although much warmer here than it was earlier in March, it is still necessary to keep the fires going practically all day and they are a necessity nights and mornings. Under the prevailing conditions some stocks of distillate that were not up to specifications have found a ready market. The demand still continues, although not quite so actively as earlier in the month, refiners buying at 4½ cents to deliver on their own contracts.

Gas Oil Demand

What has become of all the gas oil? This is a question that is frequently asked by refiners, marketers and consumers in this market. The product is scarce and refiner after refiner replies to inquiries that they have no gas oil. The would-be buyer sometimes wonders if they mean that they actually have no gas oil or that they do not want to sell what gas oil they may have. There are quite a number of the refiners who were former sources of supply for gas oil who have added cracking stills and so have a use for their own gas oil and some can also use the lighter gravities of fuel oil. Several, if not all, of these refiners are at times buyers of gas oil. Then the larger companies such as The Texas Company, Standard and others who have large cracking units are very large users of gas oil so that there has been a shrinkage going on in the quantity of gas oil that is available for the consumer, either gas companies or those who burn the oil for heat. On top of this shrinkage in the quantity of the product offered for sale comes the increase in the demand due to the availability of gas oil for fuel for domestic oil burners. A great quantity has been used that way this season. There is in a way a balance of demand, the use of gas oil for fuel being greatest in the winter and as cracking stock in the summer. Many in the trade predict that gas oil will hold its price fairly steady and that the days of excessive supplies and prices of 2 cents or less are past. The gas companies are getting away from the use of gas oil and can now when properly equipped use the heaviest grades of fuel oil and even bottom settlings. Several of the large refiners have been buyers of gas oil during the week for delivery on their furnace oil contracts with oil jobbers and they have had to pay 4 cents or better. Right now the market is strong with 4⅛ cents a minimum and 4¼ cents the average price for a good quality of gas oil.

Fuel Oil Unchanged

There has been practically no change in the fuel oil market. The demand has been helped a little by the cold spell but this was not an enduring demand. The outlook for the industrial demand for fuel oil is good but not excessively so. Several of the buyers of large quantities of fuel oil whose contracts are out or about to run out have threatened to change to coal. Talking with a very large coal operator he stated that there was an undoubted overproduction of bituminous coal and that there would be no money in coal mining for at least two years as it would take that much time for the demand to overtake production. Asked as to fuel oil he said the peak of competition with oil as fuel had been passed.

Practically the only grade of fuel oil that is readily available is the 18-22 and on this grade there is a lot of oil sold that is heavier than 18 gravity although it flows freely and is for most purposes if not for all, just as good as the 18-22 or 24-26, for that matter. The demand for gas oil has been so strong and the supply so limited that the higher gravities of fuel oil have been taken instead of gas oil. Today there is practically no supply of the higher gravities available, single cars here and there but an order for a considerable number of cars would be hard to fill and only at high prices. As high as $1.50 has been paid for 28-32 gravity which brings it almost to the gas oil class as to price. Buyers are holding back and placing orders for their present needs only and hoping that the demand for gasoline will force refiners to increase their crude runs resulting in a better supply of fuel oils. The falling off in the demand for fuel oil for use in heating will also help, they think, and they predict they will be able to buy for less a little later.

Lub Demand Light

Lubricating oil consumption is light just as gasoline demand has been light at the stations but refiners and compounders report they have made and are making very good contracts with domestic buyers and expect the export demand will increase with the advance of the season. Prices are fairly steady and one refiner has announced an increase in his price list of 1 cent a gallon, effective April 1, although eastern refiners have declined some grades. The industrial demand is steady.

Tank Wagon Situation

There have been no changes in the tank wagon market during the week. There is the usual inquiry regarding a tank wagon advance which will be increased by the advance in refinery prices but the impression gained here is that any changes will be made only after the situation has been very definitely established on a higher plane. Some of the best posted say the price may be held at so low a level compared with the refinery market that the possibility of any such condition of cut prices as has prevailed for two seasons will be eliminated. The gallonage during March has been limited and few of the larger distributors expect now to more than equal last March's record, which, however, was a very good one. The distribution of fuel and furnace oils by tank wagon dealers has been large. Several local concerns report that on several days during the month they have had a larger business than at any time during the season. This has been due to the unexpected low temperatures and the small supplies held by consumers. Even now the latter are ordering in small dumps and trying to make their supplies last until the coming of warmer weather. There is a good deal of grumbling by some of the oil men at the small returns from their heating oils department. The talk is all of higher prices another season. Many have been obliged to pay as high as 4½ cents for their distillate this month and delivered it on contracts with customers at 7½ cents at which they have certainly lost money.

Too many in the business, is the cry of the local trade and the desire to move their supplies has led some of the distributors to take small business with very long hauls, increasing their costs but not their returns from sales. There seems to be a good opening for some merger artist in the line of tank wagon distributors of fuel and furnace oils in this city or else there will be some to fall by the wayside. There are 9 and 10 distributing in sections of the city where there was formerly but 3 and the demand has not shown more than one-third increase this season instead of an increase corresponding to the added number of distributors.

GASOLINE SITUATION IN THE EAST REPORTED UNCHANGED BUT HOPEFUL

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Mar. 27.—The eastern refined oil market took on a more rosy hue during the past week, as favorable weather resulted in a considerable increase in gasoline consumption. Indications of spring induced many oil men to believe a large scale of production justified, and it is reported that this will be felt in all parts of the oil business, especially in more liberal purchases of crude petroleum. This depends in part on a continuation of the good weather, of course.

Meanwhile, the immediate situation as to gasoline is about unchanged. More liberal tank car offerings were noticed during the week and prices fell to around 12½ to 12¼ cents for tank car lots at Bayonne, a decline of ½ to ¾ of a cent from the preceding week. It is said to be difficult to buy any large quantities, however, under 13 cents.

The general market situation is still in an uncertain condition, according to the more conservative oil men, who say they believe optimistic predictions unwarranted at this time, so far as gasoline is concerned. Production and stocks of gasoline seem to be adequate to take care of a normal demand, thanks to the prevalence of cracking. Any chance of an increase in gasoline prices, they believe, depends entirely on the course of crude oil production.

Because of the comparatively large stocks of crude and fuel oil on hand, oil men point out, there has been plenty of stock available for cracking, and unless this condition changes there does not appear to them to be a probability of even a slight shortage of gasoline. A decline in crude oil production, however, might change the situation in a short time.

March so far seems to have been characterized by a distinct change for the better in the oil situation on the Atlantic Coast compared with February, which was an unusually bad month. Weekends so far in March have been favorable for motoring, and consumption of gasoline has been on a large scale. Refiners have speeded up their production schedule and have been laying up stocks of gasoline at principal distributing points in order to be prepared for a continuation of favorable consumption.

Kerosene Unchanged

The kerosene market is unchanged. Leading refiners say the strength in kerosene, gas oil and fuel oil can be attributed

CLASSIFIED WANTS

(Continued from Page 133)

FOR SALE—MAPS

ARKANSAS WELL LOG COMPANY
214 P. O. Bldg., El Dorado, Ark.

AMARILLO DISTRICT
Correct, up-to-date maps.
AMTEX MAP CO.
Amarillo, Texas
533 Kennedy Bldg., Tulsa, Okla.
Phone 8743

INCORPORATIONS

DELAWARE incorporators. Charters fees small, forms. Charles G. Guyer, 901 Orange St., Wilmington, Del.

directly to the increased amount of cracking. The demand for kerosene for heating has held up unusually well until the past week, when warmer weather seems to have restricted its use in domestic heaters.

Gas oil is also somewhat easier, although most factors are holding to 6 cents a gallon f.o.b. refinery.

The demand for Diesel oil also continues to improve. This has been a big factor in the Atlantic Coast market, as it has offset to a large extent a disappointing market for bunker fuel oil.

Lubricating Oil

Lubricating oil demand does not hold up as well as has been expected. Industrial demand is disappointing, and the spurt in demand from the motor trade has not offset it to any extent. The chief disappointment seems to be in the absence of orders for future delivery, although it is reported current shipments are up to normal.

Paraffin wax follows about the same course as lubricants. It is moving fairly steady, but orders for future delivery are not plentiful. Some refiners who were sold up six months ahead a year ago are having no trouble in supplying customers at the present time. Prices hold fairly steady, but business is being done in some quarters at slight concessions, according to reports.

Petrolatum Dull

The market for petrolatum continues dull. Seasonal demand has failed to come up to expectations. Plenty of snow white can be had for 9½ cents a pound. Amber continues to move at 3⅝ cents a pound and light amber at 3⅝ cents. Cream and lily white grades are holding steady at 6 and 8 cents a pound, respectively.

Export Situation

The Atlantic Seaboard refiners seem to be doing their share of the export business. This may be because of the improvement in the situation on the Pacific Coast. Refiners there seem not to be exporting as freely as they were two or three months ago.

Bulk exports of gasoline from New York during the past week reached the high total of 6,801,582 gallons. In addition exports in cases amounted to 2,109,450 gallons, making a total of 8,911,032 gallons. The bulk exports were all to Europe, France, Holland and Sweden being the principal consignees.

Shipments of kerosene, lubricating oil and paraffin wax held up well.

Asphalt Exports Large

Exports of petroleum asphalt continued at a high rate. From this it would seem that asphalt road building abroad is in progress on an encouraging scale from the viewpoint of motor users. Total exports of asphalt for the week were 2,943,000 pounds, compared with 2,016,000 pounds the preceding week and 3,387,600 pounds two weeks ago. These exports have been divided between Europe, Africa and the Far East. One shipment of 2,303,100 pounds went to South Africa during the past week.

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (figures in gallons unless otherwise noted in parentheses):

	Week Ended		
Gasoline:	Mar. 24	Mar. 17	Mar. 10
Bulk	6,801,582	3,126,324	2,797,736
Cases	2,109,450	1,532,700	2,287,600
Kerosene:			
Bulk	3,620,340	3,042,587	.....
Cases	1,265,980	1,607,850	4,311,950
Lubricating oil:			
Bulk	949,141	.....	2,057,840
Barrels	1,658,350	704,600	940,100
Cases	305,640	262,560	398,790
Paraffin wax:			
Bags (lbs.)	773,960	3,905,880	1,546,600
Barrels (lbs.)	999,875	677,825	352,175
Petroleum asphalt:			
Barrels (lbs.)	2,943,000	2,016,000	3,387,600
Crude oil:			
Barrels	.....	.....	293,600

The foregoing shipments include barrel exports of 500 barrels or more and case shipments of 1,000 cases or more.

Oil Tanker Charters

The tanker charter market continues fairly active with rates holding steady. New fixtures include the following:

Tanker Sunoil (Am.), 5,217 tons net, Tampico to Havana, fuel oil, 24 cents, two trips, April loading.

Tanker Trimountain (Am.), Gulf to United Kingdom-Continent, fuel oil, 23s. 6d., May loading.

American tanker, California to Japan, about 85 cents, April loading.

Oil Receipts Increase

Receipts of crude and refined oil at Atlantic Coast ports continue at a high rate, the average for the week ended March 24 being 674,000 bbls. a day. This compares with 669,000 bbls. daily for the week ended March 17. Increased takings from the Gulf Coast, California and Mexico were the rule.

Receipts from the Gulf Coast during the week ended March 24 amounted to 2,706,000 bbls., a daily average of 387,000. Receipts from California amounted to 801,000 bbls., or 114,000 bbls. daily, while imports amounted to 1,210,000 bbls., a daily average of 173,000 bbls.

Of the imports of 1,210,000 bbls., 1,015,000 bbls., or 145,000 bbls. daily, were from Mexico, and 195,000 bbls., a daily average of 28,000 bbls., were from South America.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Mar. 24	Mar. 17	Mar. 10
Gulf Coast	387,000	348,000	261,000
Pacific Coast	114,000	124,000	61,000
Imports	173,000	197,000	159,000
Total	674,000	669,000	471,000

Daily Averages by Months

1926:	Gulf	Pacific	Imports	Total
February	332,000	73,000	122,000	527,000
January	279,000	59,000	96,000	434,000
1925:				
December	298,000	56,000	103,000	457,000
November	259,000	36,000	92,000	387,000
October	249,000	36,000	102,000	387,000
September	306,000	66,000	76,000	448,000
August	291,000	54,000	90,000	435,000
July	391,000	63,000	107,000	561,000
June	379,000	66,000	118,000	563,000
May	312,000	81,000	145,000	538,000
April	353,000	78,000	101,000	532,000
March	273,000	82,000	135,000	490,000

The foregoing estimates are based upon the carrying capacity of incoming oil-laden tankers.

KANSAS FIELDS

(Continued from Page 130)

Section 28-27-7, had sand 2,728-35 feet, and is good for 75 bbls. after a shot of 120 quarts; No. 3, CEL NE NE SE, Section 28-27-7, had sand 2,711-60 feet, and is good for 30 bbls. after a shot of 120 quarts. Mid-Kansas Oil Co.'s No. 1, SE cor. NE, Section 28-27-7, is dry and abandoned at 2,805 feet. John Rodgers has spudded No. 5 Laughlin, SW cor. NE NE, Section 33-27-7. Lewis Oil Co. has the rig up for No. 3 Laughlin, CSL SE NW NE, Section 33-27-7. Leighty and Martin are drilling at 1,300 feet in No. 1, NE cor. Lot 21, Section 19-26-8. Connell has a dry hole in No. 1, NE cor. Lot 17, Section 7-27-8.

Skelly Oil Co. has a dry hole in No. 1, NE cor. NE, Section 14-25-3, at 3,150 feet. Empire Gas & Fuel Co. is rigging up No. 163 Wilson, SE cor. NW NW, Section 8-25-5. Stafford and others have a rig on the ground for No. 7 Stafford, NE cor. SE SE, Section 25-27-4. Martle Oil Co.'s No. 1, NW cor. SW, Section 23-28-7, is dry and abandoned at 3,203 feet. White Eagle Oil Co. and others' No. 1, NW cor. SE. Section 21-29-6, is dry and abandoned at 3,148 feet.

Ottawa County

Henderson and the Vickers Petroleum Co. have a failure at 2,070 feet in No. 1, CEL SE SW SE, Section 7-10-4.

Elk County

D. B. Golden's No. 1, NE cor. NW, Section 28-30-8, had sand 2,100-05 feet with 1,500,000 feet of gas. The 8-inch casing is being underreamed. The Pure Oil Co. has a rig on the ground for No. 6 Webb, NE cor. SW NW, Section 13-31-10. Southwestern Gas Co. is drilling at 300 feet in No. 12 Webb, NE cor. SW NE, Section 14-31-10. Sooner Gas Co.'s No. 3 Webb, CEL NE NE SE, Section 15-31-10, is drilling at 550 feet. Neely Drilling Co. has completed No. 1, NW cor. NW, Section 28-31-10. Sand was 1,537-45 feet, and the well is making 10 bbls. after a shot of 40 quarts. Denman Brothers have a dry hole at 2,043 feet in No. 1, NW cor. NE, Section 35-31-10. Barber and Claymon have completed No. 1, SE cor. SW NW, Section 12-30-9. Sand was 2,587-96 feet, and the well is good for 15 bbls. naturally. Pulaski Oil Co. and others have completed No. 1, NW cor. SW, Section 12-30-9. Sand was 2,034-56 feet, and the well is good for 20 bbls. after a shot of 40 quarts.

Lyon County

Connell and others are drilling at 300 feet in No. 1 Ball, SW cor. NW, Section 23-18-10. O. W. Culp has the rig up for No. 1 Bevermyer, SW cor. SE, Section 25-19-10.

Chris Sheedy and others have completed No. 1, SE cor. SW, Section 31-21-10, for 175 bbls. after a shot of 220 quarts in sand 2,236-2,300 feet; and No. 4, NE cor. SE SW, Section 31-21-10, is spudded. The White Eagle Oil Co.'s No. 2, NW cor. SW SE, Section 34-21-10, had sand 2,172-94 feet, and made 175 bbls. after the shot. Gordon, Stats and Wind have a rig on the ground for No. 1 Stillwell, NE cor. NE, Section 24-20-10. Fisher, Locke and Moore have a rig on the ground for No. 1 Hethaway, SW cor. SW, Section 11-21-11. Phillips Petroleum Co. has a dry hole in No. 3, SW cor. SE SE, Section 32-21-12, which is abandoned at 1,902 feet; No. 7, SW cor. SE SW, Section 33-21-12, had sand 1,886-1,925 feet, and made 300 bbls. after a shot of 140 quarts.

Mississippi Valley Oil Co. has spudded No. 1, C NW SE, Section 25-20-11. Marland Oil Co. is drilling at 600 feet in No. 1, NE cor. NW NW, Section 18-20-12. Ballierre and Terrien have a machine in for No. 1 Milner, SE cor. NE, Section 2-20-13. W. R. Wilson's No. 1, SE cor. SE, Section 9-20-14, is dry and abandoned at 1,910 feet.

OKLAHOMA FIELDS

(Continued from Page 34)

19-4, and the rig is up for No. 5 Stover NE cor. SW SW, Section 13-19-4. Magnolia Petroleum Co. is drilling at 450 feet in No. 1 Bright SE cor NE SE, Section 14-19-4. Mid-Continent Petroleum Corp. has the rig up for No. 1 Bright SE cor. SW SE, Section 14-19-4. Magnolia Petroleum Co. is drilling at 350 feet in No. 3 NW cor. NE NW, Section 24-19-4; and the rig is on the ground for No. 4 Horner SW cor. NE NW, Section 24-19-4.

In the Deep Rock Pool, the J. A. Hull Co's. No. 1 NE cor. SE SE, Section 22-18-3 had sand 4,289-94 feet and started flowing at the rate of 40 bbls. an hour. Empire Gas & Fuel Co. has spudded No. 2 SW cor. NW NW, Section 26-18-3; and No. 3 NW cor. NW, Section 26-18-3 is drilling at 600 feet. M. T. C. Oil Co. is drilling at 350 feet in No. 2 NE cor. SE NW, Section 26-18-3.

In northwestern Payne County, the Tidal-Osage Co. has a rig up for No. 1 SE cor. SW, Section 12-19-1w.

Garfield County

Faling and others have a rig up for No. 1 NW cor. NW, Section 24-24-3w. The Marland Oil Co. is drilling at 875 feet in No. 1 NE cor. SE, Section 9-20-4w. Mid-Continent Petroleum Corp's. No. 1 NW cor. SE, Section 16-20-4w is drilling at 1,250 feet.

Noble County

Mid-Continent Petroleum Co's. No. 15 Brumfield CEL NE SW NW, Section 22-23-2w in the Billings Pool, is drilling at 650 feet.

Kay County

In the North Braman Pool, the Marland Oil Co's. No. 1, SW cor. NW, Section 16-29-1, had the chat 3,383-99 feet and flowed 225 bbls. naturally.

In the Thomas Pool, the Marland Oil Co's. No. 6, SE cor. NW SW, Section 15-25-2w had sand 4,104-16 feet and made 217 bbls of oil and 60 bbls. of water on the swab; No. 3-A NE cor. SE SE, Section 16-25-2w, is dry and abandoned at a total depth of 2,703 feet. The Independent Oil & Gas Co. has a dry hole at 4,844 feet in No. 1-A NW cor. SW, Section 26-25-2w. Comar Oil Co's. No. 11-W SE cor. NE NE, Section 3-24-1w, is a failure at 4,666 feet. Mid-Continent Petroleum Corp's. No. 12, SE cor. NE SE, Section 30-24-1w, is dry and abandoned at 2,016 feet.

In the Davenport region, the Magnolia Petroleum Co. has rigged up No. 4 Smith SW cor. NE SE, Section 34-15-5; and No. 7 NE cor. SW SE, Section 34-15-5 had sand 3,403-55 feet and made 85 bbls. naturally; No. 8 Smith, NW cor. SE SE, Section 34-15-5, is being rigged up; and No. 1 SW cor. NE, Section 35-15-5, had sand 3,406-21 feet, was shot with 45 quarts and is making 40 bbls.

In the Skelly-Ford area, the Skelly Oil Co's. No. 4, SE cor. NE, Section 7-15-6, had sand 4,091-93 feet and made 478 bbls. the first day. Mid-Continent Petroleum Corp's. No. 5 SW cor. NW, Section 8-15-6, is drilling at 673 feet. Phillips Petroleum Co. has built the rig for No. 2 Kilgore, NE cor. NW SW, Section 8-15-6.

Creek County

The Prairie Oil & Gas Co. has rigged up No. 6 Self NW cor. SW, Section 22-17-9. Independent Oil & Gas Co. is drilling at 450 feet in No. 1-A, SW cor. SE SW, Section 19-17-10. Tidal Oil Co. is drilling at 900 feet in No. 4 SW cor. NE NW, Section 19-17-10. J. H. Wright's No. 6 NW cor. SE NW, Section 24-17-10 had sand 2,402-11 feet and is completed for 200 bbls. H. C. Wilson has completed No. 2 NE cor. NE, Section 34-17-10. Sand was 2,512-33 feet and the well was shot with 40 and with 20 quarts and is making 60 bbls. Nyokla Oil Co's. No. 2 SE cor. NW NE, Section 32-16-9, had sand 2,590-2,617 feet and is flowing 10 bbls. an hour. William Sherry has the timbers on the ground for No. 1, SE cor. NW NE, Section 12-16-10.

In the Bristow region, C. G. Tibbens has spudded No. 23 NE cor. SW, Section 30-15-9.

In the Hall-Donnelly Pool, the Twin State Oil Co. has the rig up for No. 1 Fixico NW cor. SW SW, Section 29-14-10. Prairie Oil & Gas Co. has rigged up No. 1 Samuels, SE cor. NE, Section 30-14-10. Wood Oil Co. has rigged up No. 2 Hoffman CSL SE NE SE, Section 30-14-10.

C. M. Ireland has spudded No. 5, SW cor. SE SE, Section 8-17-11, and also No. 6 CNL NW SE, Section 8-17-11.

Coal County

J. A. Berryman has a dry hole in No. 1, SE cor. SE, Section 18-2-9, which is abandoned at 1,700 feet.

Hughes County

In the Papoose Pool, the Barnsdall Oil Co.'s No. 1, NW cor. NE SE, Section 1-9-9, had sand 3,350-3,435 feet, with a show of oil and 1,200 feet of water in the hole and is drilling at 3,465 feet.

Independent Oil & Gas Co. has a dry hole in No. 1, SW cor. SE SW, Section 14-9-9, which is abandoned at 3,320 feet. Magnolia Petroleum Co. has a rig on the ground for No. 1 King, SW cor. NW, Section 18-9-9. Independent Oil & Gas Co.'s No. 1, NW cor. NE, Section 23-9-9, is dry and abandoned at 3,385 feet. Mid-Kansas Oil Co.'s No. 1, NE cor. NE, Section 34-9-9, is dry and abandoned at 3,388 feet.

In the Wetumka district, the Carter Oil Co. and others' No. 1, NE cor. NW, Section 31-9-10, is dry and abandoned at 3,490 feet. Independent Oil & Gas Co.'s No. 3, NE cor. NW SE, Section 18-8-10, is good for 200 bbls. from sand 3,402-06 feet.

Marshall County

Humble Oil Co. has a dry hole in No. 1, SE cor. NE SW, Section 24-5s-5, which is abandoned at 840 feet. Magnolia Petroleum Co.'s No. 1, CSL NE SE NW, Section 6-6s-6, is dry and abandoned at 820 feet.

Okfuskee County

Mal Damae Oil Co. has spudded No. 1, NW cor. NW, Section 11-13-8. Darby Petroleum Co.'s No. 2, NE cor. NW SW, Section 14-13-9, had sand 1,058-72 feet; was shot with 60 quarts and had a show for 75 bbls.. It is being cleaned out.

Muskogee County

C. M. Bradley has a machine on the ground for No. 1 Garrett, CNL NE NE NW, Section 33-15-18, and the location for No. 1, NE cor. NW, Section 33-14-17, has been abandoned. C. M. Bradley has a machine of the ground for No. 1 McDaniels, CSL NW SW, Section 5-14-19.

Continuous Treating Reduces Losses

Closed Method Lowers Evaporation Losses. Gas Recovery System Saves Half Tank Car of Gasoline Daily

By C. O. Willson

WICHITA FALLS, Tex., Mar. 20.—Some refiners in their improvement programs of the past year or two have devoted their entire attention to perfecting one phase of their plant operations. Others have realized that the operator who merely keeps pace with developments affecting one department of his plant is not much better off than the refiner who has refused all of the numerous improvements available and is satisfied with the antiquated practices of a few years ago.

Starting with the storage tanks for the incoming crude and ending with the loading rack for the outgoing shipments of refined products practically every phase of refining is constantly changing. It will be found that the most successful operators are those who keep in touch with all these improvements and as nearly as possible apply them to their own operations.

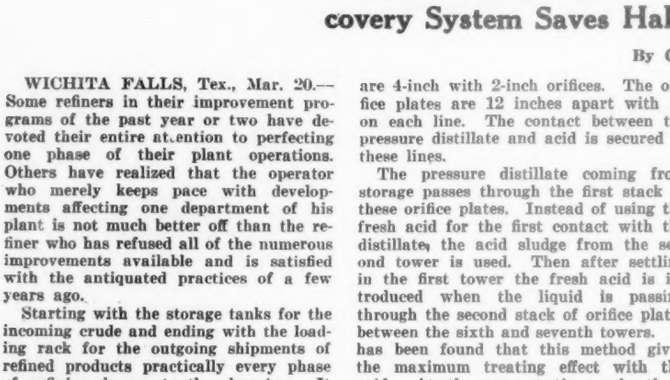


Figure 1—Continuous treating system at refinery of the Panhandle Refining Co. Two treaters used for gasoline and five for pressure distillate.

At the local refinery of the Panhandle Refining Co. there are numerous practical demonstrations of the savings which accrue in operations when new equipment is installed with whatever changes are necessary in operating methods. It will be possible here to describe only the changes made in treating, gas recovery, heat exchange and equipment to lower fuel costs.

The claim is not made that the equipment or its application is unique. The changes with results obtained are described because they illustrate methods which partially or in their entirety have been adopted at many of the more efficient refineries in the Mid-Continent Field.

Treating Plant

The seven towers in Figure 1 and an eighth tower not shown, together with tanks used to make up solution constitute the continuous treating system which handles all the pressure distillates from two Dubbs units and the gasoline output. The kerosene output, which is not large at the Panhandle refinery, is treated by the batch method.

The towers which are all 4 feet in diameter and 15 feet high were built at the company's machine shop which adjoins the refinery. The last five towers to the right (Figure 1) are used to treat the pressure distillate. To the right of the last tower and emptying into it and between the sixth and seventh towers are lines with orifice plates. The lines are 4-inch with 2-inch orifices. The orifice plates are 12 inches apart with 18 on each line. The contact between the pressure distillate and acid is secured in these lines.

The pressure distillate coming from storage passes through the first stack of these orifice plates. Instead of using the fresh acid for the first contact with the distillate, the acid sludge from the second tower is used. Then after settling in the first tower the fresh acid is introduced when the liquid is passing through the second stack of orifice plates between the sixth and seventh towers. It has been found that this method gives the maximum treating effect with the acid. At the present time only three pounds of acid per barrel of distillate are required while formerly the ratio was five to one. The acid is reduced from 66 degrees to 25. With this efficiency in the use of the acid the company does not maintain a recovery plant.

The water wash is introduced by means of a spray near the top of the fifth tower which is the third tower of the treating process. Some of the acid and water solution settles in this tower and the remainder in the fourth tower.

The doctor solution of sodium plumbite is introduced between the fourth and fifth towers with a third stack of orifice plates of the same size as that used with acid. This doctor from the bottom of the third tower circulates back to a make-up tank where by adding new material a solution of uniform strength is maintained. From the top of the third tower which is the fifth and last tower for the treating of the pressure distillate, the latter passes to storage tanks where it is ready for rerunning.

A pressure of 60 pounds is maintained in this continuous operation. Gauge glasses on all towers make easy the determination of liquid levels. By regulating the valves from the draw off lines of the towers and other connections and maintaining a constant pressure at the charging pump through a regulator the whole operation is practically automatic. The capacity of this unit for the treating of pressure distillates is 125 bbls. per hour.

Treating Gasoline

Due to the method of fractionation all rerunning and acid treatment of gasoline from the skimming plant has been eliminated. This also applies to the gasoline from the rerun stills which handle the treated pressure distillate. For that reason the first two towers shown in Figure 1 are adequate to handle the gasoline output at the rate of 200 bbls. per hour.

The gasoline from the run-down tanks comes in contact with 12 Baume caustic by means of a line with eight of the orifice plates previously described. It then passes to the second and first towers where the settling takes place. From the first tower the gasoline flows through a line with 18 orifice plates where it comes in contact with hypochlorite liquor. It then goes to one of two 500-bbl. agitators which were formerly used in the batch treatment. When one agitator is filled the stream is discharged into the second. The hypochlorite solution is drawn off the bottom of the first agitator and then the finished gasoline is pumped into storage tanks. Practically the same procedure is followed in the treating of 64-66 gasoline meeting export specifications. A separate tower not shown in Figure 1 is maintained for that purpose.

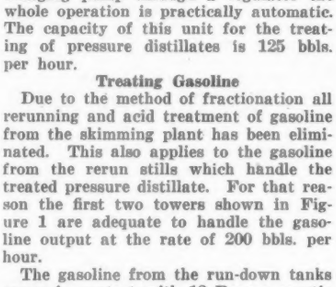


Figure 3—Fan and turbine used in circulating gases and air with Dubbs cracking units.

Several advantages have resulted from this method of treating at the Panhandle refinery. With air tight storage tanks it has reduced the gasoline and pressure distillate evaporation treating loss from about 4 to 1 per cent. It has also resulted in a saving of material. This applies not only to the acid previously mentioned but also the doctor solution. Finally labor and maintenance costs are less with more assurance that the finished product will be of uniform quality.

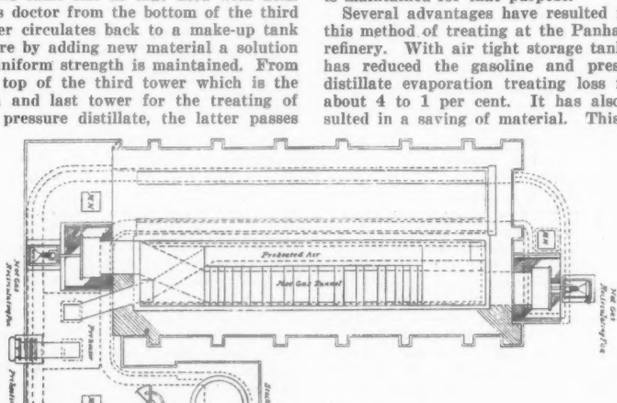


Figure 4—Diagram of installation for recirculating gases.

Gasoline From Heat Exchangers

Various uses are being made at refineries of the heat exchange secured between the hot residuum from the last shell still of a battery of skimming stills and the crude charge. It is becoming more and more generally recognized that if the exchange efficiency is great enough, it is better practice to remove all the light ends possible from the crude before it enters the first shell or tube still. Comparative data have usually shown that the gasoline yields of a battery are increased by this method and also the capacity.

Figure 2—Absorption tower of gas recovery system.

At the Panhandle refinery it was formerly the practice to pass the preheated crude from the exchangers direct to the first shell still of a battery of six. This still was fired and the first overhead stream was obtained. By making a few inexpensive changes in the equipment the company is now taking from the exchanger a gasoline stream which averages about 6 per cent of the crude charge.

The crude at atmospheric temperature comes in contact in the exchangers with the fuel oil residuum from the last shell still at a temperature of 550 to 560 degrees Fahrenheit. Four G-120 type Braun heat exchangers are used. The capacity of the battery is 4,000 barrels daily. The fuel oil leaves the exchangers at a temperature of 115 degrees Fahrenheit and the crude is preheated to an average temperature of 280 degrees Fahrenheit.

From the last heat exchanger the crude passes to a vaporizer formerly used as a tank car. This tank which was no longer suitable for transportation service has a capacity of 5,000 gallons. It is set on

concrete supports above the heat exchangers. As the crude empties into this tank the light ends which are vaporized at 280 degrees Fahrenheit or less pass out through two 6-inch vapor lines connecting to the dome of the tank. The vapor lines connect to a 30-foot packed tower. The stream in the tail house varies as to gravity and quantity depending on the crude gravity and method of operation. With a 39 gravity crude the finished gasoline stream will average 70 Baume gravity.

The crude not vaporized passes to the first shell still from which the next gasoline stream is obtained. It has been found that this method of operation is practically the same as adding a still increasing the capacity of the battery about 10 per cent and has also increased the gasoline recovery. In addition the separate high gravity stream from the exchanger is an aid in blending for gasoline meeting export or domestic specifications.

Gas Recovery System

Another feature of interest at the refinery is the gas recovery system. A 3-inch vacuum is automatically maintained on the run-down tanks, storage tanks and look boxes. This gas is passed to a tower shown in Figure 2. The tower is 40 feet high and 4 feet in diameter. Thirty-two feet of the tower is filled with wooden grids. The grids are laid tight one on top of the other.

Instead of using the usual absorption oil, a naphtha cut from the crude battery is used as the absorbing medium for the gas. This naphtha is 50-51 degrees Baume gravity with an initial of 260 and an end point of 430 degrees Fahrenheit. The naphtha is sprayed in at the top of the tower coming in contact with the gases introduced at the bottom of the tower.

This naphtha is recirculated from the tower and storage tank until the desired saturation point is reached. At the same time fresh naphtha enters the tank from the tail house. Generally about 20 per cent is added to the volume of naphtha before the saturation point is reached. The gravity in this operation has been increased to about 55 degrees Baume.

This product does not have to be rerun as is the case when the usual absorption oil is used. The product is taken to the treaters where the sweetening treatment previously described for gasoline is given. It is then available as a finished product for blending material. A three-day test recently showed that with a throughput of 4,000 bbls. of crude daily 4,000 gallons of gasoline were being recovered at the tower. If desired the lean gas is available as fuel.

Saving in Fuel

Another important saving at the refinery has resulted through the installation of the Lientz Recirculating System in connnection with the operation of two Dubbs units. This system based on operation extending over one year has reduced fuel costs and lowered maintenance expense. During the 10½ months it was in operation during 1925, 5,042 bbls of fuel oil were used as fuel. The installation coupled with some minor changes made in furnace design saved approximately 18,000 bbls. of fuel oil during that period. Figured in dollars this meant a saving in excess of $20,000.

This saving is due to the circulation of hot gases which generally are wasted passing out of the stacks. The accompanying picture and diagram (Figures 3 and 4) show the main feature of the installation.

Two fans are used to recirculate the hot gases, one being located in front of the furnace and the other in the rear. The hot gas tunnel is located under the furnace. At the same time part of the recirculated gas is used to preheat what air is needed for combustion in the furnace. This air in tubes passes counter current to the hot gases and is usually brought from atmospheric temperature to 550 degrees Fahrenheit. The circulation of air is obtained through the preheater turbine.

It is claimed that with a furnace of the usual design without provision for recirculating the hot gases approximately 50 per cent of the hot gases are wasted passing out of the stack at temperatures as high as 1,000 Fahrenheit. With the Leintz equipment approximately 70 per cent of this 50 per cent is recirculated and the stack temperature reduced to 350 degrees Fahrenheit.

Several combustion principles are involved in the operation of this system. In the first place the recirculation of the hot gases and the preheating of the relatively small amount of air assures the medium furnace temperature necessary for efficient operation. Usually this desired furnace temperature is obtained by introducing a large amount of cold air.

The recirculation also assures that the tubes will be enveloped with an even temperature, a factor both in maximum heat transfer and the life of the equipment. It does away with the need of specially constructed arches or a separate vaporizing chamber to protect the equipment from a radiant heat of the furnace. With the preheated air oxidation is less and this aids in reducing maintenance costs.

GARBER WELL RECALLS OTHER NOTABLE GUSHERS

(Continued from Page 33)

more than 10,000 bbls. a day in flush production on its Schroeder lease in the Garber Field.

Wonderful Well in Kansas

The largest well in the Kansas fields was the Gypsy Oil Co.'s No. 5 Shumway, Section 11-26-4, Towanda Pool, Butler County, which came in on September 8, 1917, starting at 15,000 bbls. a day. It produced 2,225,000 bbls. before it quit. The Towanda Field had a few other wells that started at better than 10,000 bbls. a day but they did not hold up long.

Central Texas Gushers

In the North Texas Field the Gulf Production Co.'s No. 2 Stoker, Section 20, Lunatic Asylum lands, 2 miles south of Breckenridge, started at 14,000 bbls. a day and produced over 300,000 bbls. of 38 gravity oil in 30 days, from sand at 3,070-95 feet. This well produced considerably over 1,000,000 bbls. The Plateau Oil Co.s No. 1 Ward, a half-mile southeast of Breckenridge started at 4,800 bbls. a day but at the end of 12 months was making 5,000 bbls. having produced over 1,750,000 bbls. its first year. Three years after it came in the well was flowing 105 bbls. of oil, 3,000,000 feet of gas and 600 bbls. of water. From May 23, 1920, to June 1, 1923, it produced oil to the value of $3,258,918 The oil was of 38 gravity and came from a gray lime formation at 3,070-80 feet

Big Wells in Powell

Wells estimated at 15,000 bbls. were found in the Powell Field in Navarro County, Texas. The Tidal-Buttram Oil Co.'s No. 1 Crews, started at 16,000 bbls.; Humble Oil & Refining Co.'s No. 1 Davis, 15,000 bbls. Atlantic Oil Producing Co.'s No. 1 Kellum, 17,000 bbls. Humble Oil & Refining Co.'s No. 7 Davis, 12,000 bb's. The Gulf Production Co.'s Nos 1, 2 and 5 Crews all started at higher than 10,000 bbls. and the same company's No. 3 Barron at 14,000 bbls. and the Tidal-Buttram Oil Co.'s No. 2 and 4 Barron at 14,000 and 10,000 respectively, all in the course of one month, October, 1923. In that month in the Powell Field 140 new oil wells yielded a total initial production of 405,533 bbls., or an average of over 2,800 bbls. per well, and 11 wells completed in September and October in that field averaged over 12,700 bbls. initial production per well, according to the estimates placed upon them.

While the Boyd Oil Co. completed a brace of 9,000-bbl. wells in the Wortham Field in December and January, 1924-25, there were no wells bigger than this in that field, which lies in Limestone and Freestone Counties.

Salt Creek's Prize Producer

The Wyoming Associated Oil Co. completed the best well ever on record in Wyoming, its No. 20 in Section 25-40-79, in the Salt Creek Field, which started at 15,000 bbls. from the Wall Creek sand. This was in 1918, and five years later the well was producing 4,450 bbls. a day. The Mammoth Oil Co.'s shale producer on the Teapot Dome was estimated at 28,000 bbls. a day, but in a year was down to 50 bbls. It was 1,250 feet in depth.

Ohio's 42,000-Bbl. Well

Ohio claims the largest initial producer outside of the low grade gushers in Spindletop and in California. The Ohio Oil Co.'s No. 1 McMurray, in Section 11, Allen Township, Hancock County, came in in July, 1891, from sand at 1,250 feet. It was at first a monster gasser, but when the oil came it flowed 16,000 bbls. in four hours and the original estimate of 42,000 bbls. for the first 24 hours has never been reduced. Water broke in and together with the big gas production caused the oil to cut badly. This well produced an immense volume of crude before it was abandoned some years later. It was a bigger well than the Sinclair's Garber gushers, but the oil was about 37 gravity, while the most recent big well on the Hartley farm is producing oil of 46 gravity as it comes from the well.

Pennsylvania's Best

The banner well in Pennsylvania was drilled in 1891 by Greenlee & Forst on the Meaney farm, 2 miles west of Oakdale in the McDonald Field. It produced from the fifth sand at between 2,400 and 2,500 feet and was good for 14,000 bbls. a day of high grade oil. Guffey, Murphy and the Jennings Brothers completed a 12,000-bbl. well in No. 1 J. J. Matthews in the same field in the summer of 1891, but it went off quickly.

Great Well in Caddo Field

North Louisiana boasts a 47,000-bbl. well in the Caddo Field. It was the Producers Oil Co.'s (The Texas Company) No. 7 Harrell, in Section 4-21-16, Caddo Parish, completed in 1911. The oil was of 45 gravity. This well may not have been good for 47,000 bbls. as was claimed for it but it produced 25,000 bbls. a day, partly pinched in, and conservative estimate on its potential production would place it at 35,000 bbls.

No. 7 Harrell staged one of the mast spectacular fires in Louisiana history when it unexpectedly came in while being bailed. Two weeks work was required to extinguish the flames.

The best well in the Homer Field in Claiborne Parish, Louisiana, was the Standard Oil Co.'s No. 2 Guy Oakes, in Section 29-21-7. It had been abandoned as a failure at 1,598 feet. Bill Rowe, an independent operator went down and uncovered the 2,000-foot sand and the Standard deepened the "dry hole" and it started off at 32,000 bbls. a day and put 20,000 bbls. into the pipe lines later. The gravity of the oil was 37 degrees.

Big Low-Gravity Well

In the fields producing heavy oil very large wells have been more common than in high grade fields. The discovery well in Spindletop drilled by Captain Lucas near Beaumont started at 50,000 bbls. This opened the Gulf Coast Field in 1901 and was followed by the Heywood Brothers' 90,000-bbl. gusher in the same field. More than a dozen wells of the 10,000 to 15,000-bbl. class were completed in different fields in the Gulf Coast Field in Texas and south Louisiana. E. F. Simms & Co.'s No. 11 Sweet in the Goose Creek Field came in in 1917 at 35,000 bbls. and the Farmers Petroleum Co.'s No. 16 Stevenson, in the Humble Pool started at 24,000 bbls.

Estimates on Smackover heavy-oil wells were or little value, being generally regarded as high. The Burton Trustees' No. 1 Hughes, in Section 28-15-16, was estimated at 40,000 bbls. from the Nacatoch sand. This is a higher estimate than placed on any well drilled into the Graves sand which was opened in the spring of 1925 but a number of Graves sand wells were estimated at 12,000 to 18,000 bbls.

All American wells fade into insignificance when the Union Oil Co.'s "Lakeview gusher" is mentioned. It came in in 1910 and flowed 75,000 bbls. a day and produced over 9,000,000 bbls. It was located in what is now known as the Maricopa Field in the San Joaquin Valley.

CONFEREES DISAGREE; MAY CAUSE SHUTDOWN

(Continued from Page 36)

to find these, provided the Mexican government encourages it to do so. With the best luck, however, these cannot be found and production from them put on the market, in less than two years. In the meantime, upon the regulations of the new petroleum law and the attitude of the Mexican government toward the petroleum industry will depend the future operations and the possibility of continuing the efficient organizations now representing the Standard Oil Co. of New Jersey."

In other words, promulgation of regulations that do not encourage expansion of activities will stop the company from going ahead with plans already held in abeyance for years. Meantime producing operations have remained limited to lands owned in fee or leased from individuals before May 1, 1917, the date of the Carranza Constitution, and all lying in the two important producing districts.

Provisions of Law

The new law which was published in The Oil and Gas Journal of October 29 provides that exploration for and exploitation of petroleum shall be solely under concessions issued by the Federal Government. Companies or individuals who own lands in fee or leases acquired previous to May 1, 1917, may receive "confirmatory concessions," provided application for same be made before December 31, 1926. If application is not made by that time, the owners are to have no rights as against the nation.

The law authorizes and directs the President to issue regulations necessary to carry its provisions into effect, and it is the discussion of these regulations which has ended without agreement. As the law provides for the forfeiture of concessions if regular work is not carried on and the imposts of the Government paid, it is evident, according to the New Jersey company's analysis, that even should the owner of preconstitutional oil rights obtain from the Government a new grant in the form of a "confirmatory concession," this will be hampered by conditions and limitations wholly inconsistent with the full ownership which he previously enjoyed. In other words, the petroleum law clouds the title of all proven and potential oil properties acquired by the companies.

It is reported that some differences developed among the conferees before the sessions broke up in Mexico City. The oil men, it is stated, disagreed over the acceptance of clauses and regulations which touch upon lands owned and held before 1917. Some of them favored accepting those clauses which refer to lands acquired after 1917.

Advices from Mexico City state that the Mexican Government will promulgate the regulations and will then try to smooth over the objections of the oil operators.

WASHINGTON IN DARK

By Charles E. Kern
Washington Bureau
The Oil and Gas Journal

WASHINGTON, D. C., Mar. 29.—The State Department has received no information on the breaking up of the conference of oil company representatives with the Mexican government over Mexican oil and land laws and officially it is not known whether the conference has been successful or not.

OIL INCOME TAX APPEAL

PITTSBURGH, Pa., Mar. 27.—An order was signed in Federal Court permitting an appeal by the Government to the United States Circuit Court of Appeals from a decision of Judge W. H. S. Thompson in which he held that income from oil lands of the Osage Indians was not taxable by the Government. The decision was given in the suit of the Colonial Trust Co. of Pittsburgh, executor of the estate of Glenn T. Braden, Sewickley oil operator, and involves $823,656 claimed by the Government as income tax from Braden's estate.

REFINING AND MARKETING

Cracking May Reduce Supply of Products Other Than Gasoline

By N. O. Fanning
New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Mar. 29.—Increased yield of gasoline from crude oil by the use of cracking processes and elimination of the practice of burning oil under boilers were given today by a prominent oil man as the two outstanding developments in the oil business.

"The wider use of cracking processes will help the oil industry to meet the demand for gasoline without making an undue strain on crude resources," he said, "but it must also be remembered that the greater the yield of gasoline, the smaller the yield of the other combined products. In other words, every barrel of crude oil can yield only a barrel—or a little less than a barrel— of the various products. If the average yield of gasoline is increased from 14 gallons to, say, 28 gallons, or from one-third to two-thirds of a barrel, there is left a proportionately smaller supply of other products, including gas oil, kerosene, fuel oil and lubricating oil.

"The assumption is, therefore, that while increasing the yield of gasoline, the oil business will be faced with a shortage of one or more of the other products, provided consumption of these increases at as fast a rate as gasoline.

"The immediate effect of the trend toward cracking is seen in the present high prices for kerosene, fuel oil and gas oil," he continued. "Certain grades of the latter products are an indispensable commodity from the viewpoint of the consuming public, and their quotations must be taken into account by the oil industry, as well as that of gasoline.

"The belief which has been expressed in some quarters that the demand for oil products can be met from a decreasing crude supply is, in my opinion, ill founded. If gasoline were the sole product to be sold it would be a different matter. However, the oil business is faced with an almost certain increase in demand for gasoline, Diesel oil and lubricating oil, to say nothing of a growing list of miscellaneous or minor products. The industry should prepare not only for the gasoline demand but also for the demand for all of the products of crude with a view to supplying all of them at reasonable prices.

"There is one way in which the problem should be met, to the way of thinking of many students of the situation. That is, by discouraging the burning of oil under boilers. This includes the use of bunker fuel oil and fuel oil burned under boilers at industrial plants.

"Science is apparently attacking this problem and is making considerable headway, by perfecting the Diesel engine, which is an economic user of fuel. Diesel engines are coming into widespread use to propel ships and to supplant steam engines in various industrial plants, and wherever else the steam engine is used At least 300,000,000 bbls. of oil can be saved annually in this way, which will add that amount to the supply of products which are most needed, which crude oil alone can supply."

OIL DISTRIBUTORS MERGED

CHICAGO, Mar. 27.—John Burke has sold his interest in the Supreme Oil & Refining Co., of Indianapolis, the Motor Oil Co. of Logansport and the Franklin Motor Service Co., of Franklin, Ind., to his associates. The latter have organized the White Star Oil Co., of Indiana, and will continue the three businesses as one with H. H. Jackson, formerly general manager of the Connerville Oil Co., as manager.

NATIONAL PETROLEUM ASSOCIATION TO MEET AT CAMBRIDGE SPRINGS, PA.

The spring meeting of the National Petroleum Association which will be held at Cambridge Springs, Pa., April 15 and 16 will be largely devoted to group sessions in which matters of interest to all departments of refinery organizations will be discussed.

Timely developments in traffic, credits and manufacturing are among the more important departments which will receive consideration at the spring meeting. The fellowship supper to be held Thursday evening, April 15, will be the entertainment feature.

Following is the tentative program for the two days as announced by O. P. Keeney, president:

Program

Thursday Morning, April 15

10:00 a. m.—Remarks by O. P. Keeney, president of the association.

10:30 a. m.—The traffic department:

(a) The work of the department at Washington.
(b) The traffic groups.
(c) Rate situations requiring discussion and action.

By Willis Crane, traffic attorney, National Petroleum Association.

Thursday Afternoon, April 15

2:00 p. m.—"The Modern Trade Association in Action."
(Speaker to be announced)

3:00 p. m.—Remarks.
Fayette B. Dow

3:30 p. m.—Uniform accounting for the oil industry.
W. W. Mattison,
American Petroleum Institute
Discussion

4:00 p. m.—Reduction of manufacturing expense by ascertainment of refining costs.
P. S. Tarbox,
Trustee in charge, Department of Economics, Accounting and Statistics.
Discussion

Thursday Evening, April 15

6:30-7:30 p. m.—Illustrated talk on the work of the Department of Welfare and Insurance.

7:30 p. m.—Fellowship supper.
F. G. Clark,
In charge of entertainment.

Friday Morning, April 16

B. B. Stroud, presiding

10:00 a. m.—General subject, the work of the Department of Manufacture.
By B. B. Stroud

Papers will be presented by H. S. Bell, and H. A. Ross, consulting engineers, of New York.

C. F. Parmelee, consulting engineer of New York, will present a paper on the gasoline situation.

Friday Afternoon, April 16

2:00 p. m.—General subject, What refiners ought to know.

1. "Functions of the Association's Local Trade Groups."
2. "The Association's Plan for Credit Information.
E. M. Lyons,
Trustee in charge, Department of Trade and Commerce.
Discussion

4:00 p. m.—"The Association's Finances."
G. B. Hunter, treasurer.
The Association's Membership.
H. A. Logan,
Trustee in charge, Department of Membership and Relations.
New or unfinished business.

TRUCKING GASOLINE TO EVADE TAXATION

BEAVER, Okla., Mar. 27.—Complaints of gasoline dealers that gasoline is being trucked into several border counties of northwestern Oklahoma from Kansas, Texas and Colorado and being sold free of tax are being investigated by Edward Graham, chief inspector of the oil and gas bureau of the Corporation Commission. Gasoline thus brought into the State is not inspected, and since collections are made by the State Auditor on inspection returns of the Corporation Commission, no tax is received by the State. Local inspectors are paid 4 cents a barrel for their services and their income from that source is too small for them to give all their time to the State. Gasoline dealers are asking that provision be made for State line riders to stop interstate trucking where the law is evaded.

Reports of similar law evasions have been received by the commission from northeastern counties. Mr. Graham recently made an investigation in that territory.

BEGIN EAST CHICAGO PLANT

CHICAGO, Mar. 27.—Work was started this morning on the preliminary work of grading the site for the new refinery of the Roxana Petroleum Corp., at East Chicago. The final action by the city council will not be taken until April 5 but the Board of Public Works has already approved the franchise asked for and the public hearing developed no opposition to the granting of the use of certain public streets for the purpose of laying a pipe line to connect the proposed refinery with its docks on the ship canal which will give it direct communication with Lake Michigan and the Great Lakes. The company is also reported to have started the construction of its pipe line from Wood River, Ill., to the new refinery.

NEW ETHYL GASOLINE BY JERSEY COMPANY

The Standard Oil Co., (New Jersey) and the Standard Oil Co. (Louisiana), beginning April 1, is starting to market a product called Esso, a special motor fuel which will contain ethyl lead as one of the compounds. The New Jersey company is one of the original marketers of ethyl gasoline which it withdrew from the market during the Surgeon General's investigation. Last summer the company marketed an anti-knock gasoline which is understood to have been derived from California crude and which was developed at the company's Bayway plant. In some sections the anti-knock gasoline marketed was a benzol mixture. The fuel sold at a premium of 3 cents above the market. The present fuel is described as having the advantages of the anti-knock gasoline marketed last year with the added advantage of tetraethyl lead. It is colored red and a 5-cent premium is asked.

OKLAHOMA CHARTERS

OKLAHOMA CITY, Okla., Mar. 27.—A permit to do business in Oklahoma was granted recently to the Barnsdall Refining Co. of Maine, capital investment in the state $100,000, state office at Tulsa. Charters were issued recently to the Monon Petroleum Co. of Bartlesville, capital $50,000, incorporators, Frank Layton and A. W. Busmann of Copan and T. A. Hall of Bartlesville.

REFINING PROMOTIONS BY THE TEXAS COMPANY

HOUSTON, Tex., Mar. 27.—The following promotions and transfers have been announced in the refining department of The Texas Company: W. K. Holmes has been appointed first assistant general superintendent of the Port Arthur plant and T. G. Dellinger has been made second assistant general superintendent there. Mr. Holmes has been connected with the company since 1907 and was formerly superintendent of the West Tulsa refinery. While there he developed a number of processing methods and was active in research work. Mr. Dellinger has been with The Texas Company since 1909 at Port Arthur and worked his way up from stillman.

L. F. J. Wilking has been appointed superintendent of the Port Neches plant. He begun as a chemist at the Port Arthur refinery, then treater and chief treater, going to the Casper, Wyo., plant last year as superintendent. A. S. Bailey was transferred from second assistant general superintendent at Port Arthur to the superintendency of the Casper refinery. He has been with the company since 1907.

H. M. Herron has been appointed general superintendent of the New York terminals, with headquarters in that city. He entered the service of the company at Houston in 1910.

PIONEER REFINING CO. BUILDS SOUTHTON LINE

SAN ANTONIO, Tex., Mar. 27.—Pioneer Oil & Refining Co. of Somerset, at a cost of over $25,000, has built a pipe line from its refinery in Somerset to Southton on the Southern Pacific railroad south of San Antonio, a distance from the refinery to Southton of about 14 miles. From the Southton Field on the Southern Pacific to a crossing of the Missouri Pacific, south of Mitchell Lake, 2½-inch pipe was used and from there to the refinery in Somerset 3-inch pipe.

There is more than 250 bbls. daily from wells at a depth of 650 feet in the Southton Field and the oil is high gravity. Storage tanks have been erected on the Missouri Pacific and the plan is to run crude to the refinery through the pipe line and fuel oil back through the line to the two railroads, giving the refinery an outlet for its fuel oil on two trunk line roads.

CREDIT DEPARTMENT MOVED

CHICAGO, Mar. 26.—Effective today the Marland Refining Co., has removed its credit department to Chicago. M. D. Creel is the manager of this department and he will have his headquarters with the local sales department of which Jos. Mudd is the manager, at 208 South La Salle St., in the Continental-Commercial Bank Building. In speaking of the change, Mr. Mudd stated that it was made as the credit office would be more closely in touch with its customers and also with sources of information regarding individual concerns.

JOHN M. CAMERON DIES

John M. Cameron, president and general manager of the Cameron Refining Co., Ardmore, Okla., died early Monday morning at St. Louis, Mo. Mr. Cameron was widely known among both producers and refiners in the Mid-Continent Field. Previous to his connection with the Cameron Refining Co., Mr. Cameron was manager of the Erie, Kans., refinery of the Great Western Refining Co., where one of the first lubricating plants in the Mid-Continent Field was built.

STEEL PLATE REFINERY EQUIPMENT

A Single Item or a Complete Refinery

Graver Builds

Tanks
- *Welded*
- *Riveted*
- ~~Glass~~ Steel
- *(Riveted, Inside & Outside Welded)*
- *Structural Supports*
- *Tower Tanks*
- *Standpipes*
- *Any Size Tanks Erected Anywhere*

Refinery Equipment

Jenkins Cracking Process

Stacks-Breechings

General Steel Plate Construction

Water Softeners
- *Hot Process*
- *Cold Process*
- *Zeolite*
- *Household*

Filters—*Pressure*

Purifying Systems *for Swimming Pools*

GRAVER *Corporation* Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building

Brief Items for Plant Operators

TO INSTALL PORTABLE UNITS IN PANHANDLE

The natural gasoline department of the Skelly Oil Co. is completing arrangements to enter the Panhandle fields of Texas. In line with a trend which has been apparent in other fields during the past few months, the company will first install portable plants. Present plans call for the installation of portable units as needed to care for the gas production from new wells. This portable equipment will be both of the charcoal and oil absorption types. The charcoal installations will be similar to one installed in Oklahoma by the company and which has given very satisfactory results.

A large permanent plant will also be built in a central location. The gas will be taken from the portable equipment located in different parts of the field as soon as the permanent plant is ready to operate. The latter will have a capacity of 25,000,000 to 30,000,000 feet of gas daily.

The interesting feature of the Skelly program is the decision to combine the temporary and permanent equipment in handling the gas from the field. In the past it has been customary to wait until the producing possibilities had been determined before deciding on the installation of a natural gasoline plant. This resulted in a large amount of gas being wasted. For several months some of the larger natural gasoline manufacturers have been installing portable units just as soon as the gas production of one or more wells in a new field would produce 1,000 gallons or more of natural gasoline. This method of operation is continued until connection is made with permanent plants.

NEW CRACKING SYSTEM TO ELIMINATE COKE

CASPER, Wyo., Mar. 27.—The Standard Oil Co. of Indiana, is experimenting with a new system of cracking gas oil which does not leave a residuum of coke in the stills after the runs. Instead of a solid residuum of coke, the remainder of the oil is in the form of a pitch resembling asphalt, but is not applicable to all the uses that asphalt is because of a difference in constituency.

This pitch can be used for some of the same purposes that asphalt is used for and the Standard of Indiana is now seeking a market for this subtance. Should a market be found the company will practically do away entirely with the manufacture of coke as a by-product of the cracking of the lighter oils in the pressure stills and also discard the present method of still cleaning by human labor.

It is stated that the requirement of using men in cleaning stills while same are at a high temperature, is one of the main incentives that the company has to secure a market for the new pitch. This still cleaning is recognized as the most arduous work in refinery practice at present and although the Standard company of Indiana pays high wages for this class of labor and sees that the workers are given much spare time for rest, the firm's aim is to eliminate such work in its plants as far as possible.

BARNSDALL REFINERIES INSTALL CROSS UNIT

The Barnsdall Refineries, Inc., is completing the installation of a 2,000-bbl. Cross unit at its Barnsdall, Okla., refinery. This will double the cracking capacity of the refinery which already has two 1,000-bbl. units in operation. An interesting feature of the latest Cross installation lies in the fact that Gray towers for treating the cracked gasoline in the vapor phase are also being installed.

With the two 1,000-bbl. units the company has in operation three 8-ton towers. With the new 2,000-bbl. units this capacity per unit has been increased to 16 tons. Two of these units will handle the output of the cracking unit.

The Barnsdall company is also installing a 3,500-bbl. pipe still to handle crude oil.

NEW CONTRACTS CLOSED BY THE KELLOGG CO.

The M. W. Kellogg Co. announces that there are now under construction Cross cracking units having a daily capacity of 54,000 bbls. The total capacity of Cross units operating and under construction is now 175,200 bbls.

In the last few weeks contracts have been closed with the following companies: Union Oil Co. of California, Wilmington, Calif., plant, four units totaling 8,000,-bbl. capacity; Atlantic Refining Co., Point Breeze, Philadelphia, four units totaling 8,000 bbls.; Standard Oil Co. of New York, Providence R. I., two units totaling 4,000 bbls.; Magnolia Petroleum Co., Beaumont, Tex., six units totaling 12,000 bbls.; Vacuum Oil Co., one unit of 1,000 bbls. at Olean, N. Y., and two units totaling 4,000 bbls. at Paulsboro. N. J.; Barnsdall Refining Co., one 2,000-bbl. unit; Richfield Oil Co., Hynes, Calif., two units totaling 4,000 bbls.; Champlin Refining Co., Enid, Okla., two units totaling 4,000 bbls.; Nippon Oil Co., Japan, one 1,000-bbl. unit, and Anglo-Persian Oil Co., England two units totaling 2,000 bbls.

COLOR REQUIREMENT OFFICIALLY DELETED

The official color requirement for United States Government motor gasoline has been deleted from standard specifications by the executive committee of the Federal Specifications Board as the result of a recommendation by the United States Public Health Service that all gasoline containing tetraethyl-lead should be given a distinctive color as a safety precaution. Method 10.11 described in the United States Government standard specifications 2c for lubricants and liquid fuels, published as technical paper 322-A of the Bureau of Mines, Department of Commerce, will be replaced later by a more suitable test. Although formal revision of the specification has not been made, interim authority has been granted to delete this test pending formal revision.

As a result of the investigations of tetra-ethyl-lead gasoline, it was recommended that all such gasoline be colored distinctively, and that enough dye be added to lessen the likelihood of using the gasoline for cleaning. It was also recommended that all mixing of gasoline with the tetra-ethyl-lead fluid be done at refineries or large scale distributing stations, so as to have it done under the best conditions.

Several states have enacted legislation making the current United States Government specification for gasoline official in the state, and making revisions of the Government specification apply also in the local specification. For this reason it was necessary to reconcile the Surgeon General's recommendations with the specifications, and since it has been the opinion of many people for some time that the color requirement could be replaced by a more suitable one, the action of the executive committee of the Federal Specifications Board was taken upon the recommendation of the Technical Committee for Lubricants and Liquid Fuels. This latter committee is composed of technical representatives of the government department which are large users of such petroleum products. N. A. C. Smith, petroleum chemist, Bureau of Mines, is chairman of the committee. Dr. George K. Burgess, director of the Bureau of Standards, is chairman of the United States Government Federal Specifications Board.

AMONG THE TECHNICAL MEN

T. H. Dowlen, general superintendent of the Cities Service Refining Co.'s refinery at East Braintree, Mass., started to learn the refining business some years ago during summer vacations while attending the Beaumont high school and the University of the State of Texas. He worked in the oil well and mills supply department of a Texas supply company, handling fittings and equipment for refinery and oil well use.

T. H. Dowlen

For a year or so he worked as a roughneck and driller in the fields around southeastern Texas and Louisiana, and after this experience entered the development and research department of the Prudential Oil Corp. at Baltimore. After two years of intensive training Mr. Dowlen went into the refinery as chief gauger. He held various positions in the refinery which operated on Mexican crude running to fuel, asphalt and coke. He then returned to the Mid-Continent as construction engineer for the Sapulpa Refining Co. and built the tail gas plant there which was the first of its kind in the Mid-Continent Field.

After putting this plant in operation, he went to Cosden & Co. where he was employed for some two years as superintendent of the lubricating department. While here the department was enlarged by thirty 1,200-bbl. tower stills and also 100 cracking stills were built of the Coast design. Mr. Dowlen was next with the Pierce Oil Corp. as superintendent of the Texas City plant. Later he was with the Island Oil Corp., stationed at New Orleans in the construction of the Island Refining Co.'s plant there. After putting this plant in operation, Mr. Dowlen was transferred as general superintendent in 1921 to the Massachusetts Oil Refining Co.'s refinery at East Braintree, the Island interest having taken this plant over. In 1923 the refinery was taken over by the Cities Service Refining Co., a Doherty organization, and Mr. Dowlen was retained as general superintendent. The equipment was completely redesigned and made into a continuous plant for completely processing all grades of crude, having up to the present time processed seven different crudes in a single month. The refinery is now processing 10,000 bbls. per day including cracking.

RICHEY PROCESS UNIT IN CORSICANA PLANT

The Kent-Middleton Refining Co. is now operating one unit of the Richey cracking process at its Corsicana, Tex., refinery. This process which is not generally known by the industry was developed and is owned by the Motor Fuel Corp. of Franklin, Pa. The process which in general design belongs to the tube and tank types has been operated at another installation for two years.

Although in general design it follows the tube and tank type, several interesting features are claimed for the process. The process is straight liquid phase operating at 600 pounds pressure. It is designed and operated to reduce fixed gas and carbon to a minimum. By the use of a series of heat exchangers and tube still, the cracked oil is cooled to a low temperature before expansion. It is then reheated and fractionated without the addition of any heat except that originally contained in the cracked oil.

The owners state that by cooling before expansion the oil is not subjected to a cracking temperature in the vapor phase thus eliminating the secondary reaction, the cause of excessive carbon formation. High uniform velocity is maintained throughout the entire system to the expansion valve and practically no carbon is deposited in the system. Less than nine barrels of oil are under pressure at any one time.

The rated yield on gas oil is 80 to 85 per cent motor fuel. With gas oil of low sulphur content no chemical treatment is required.

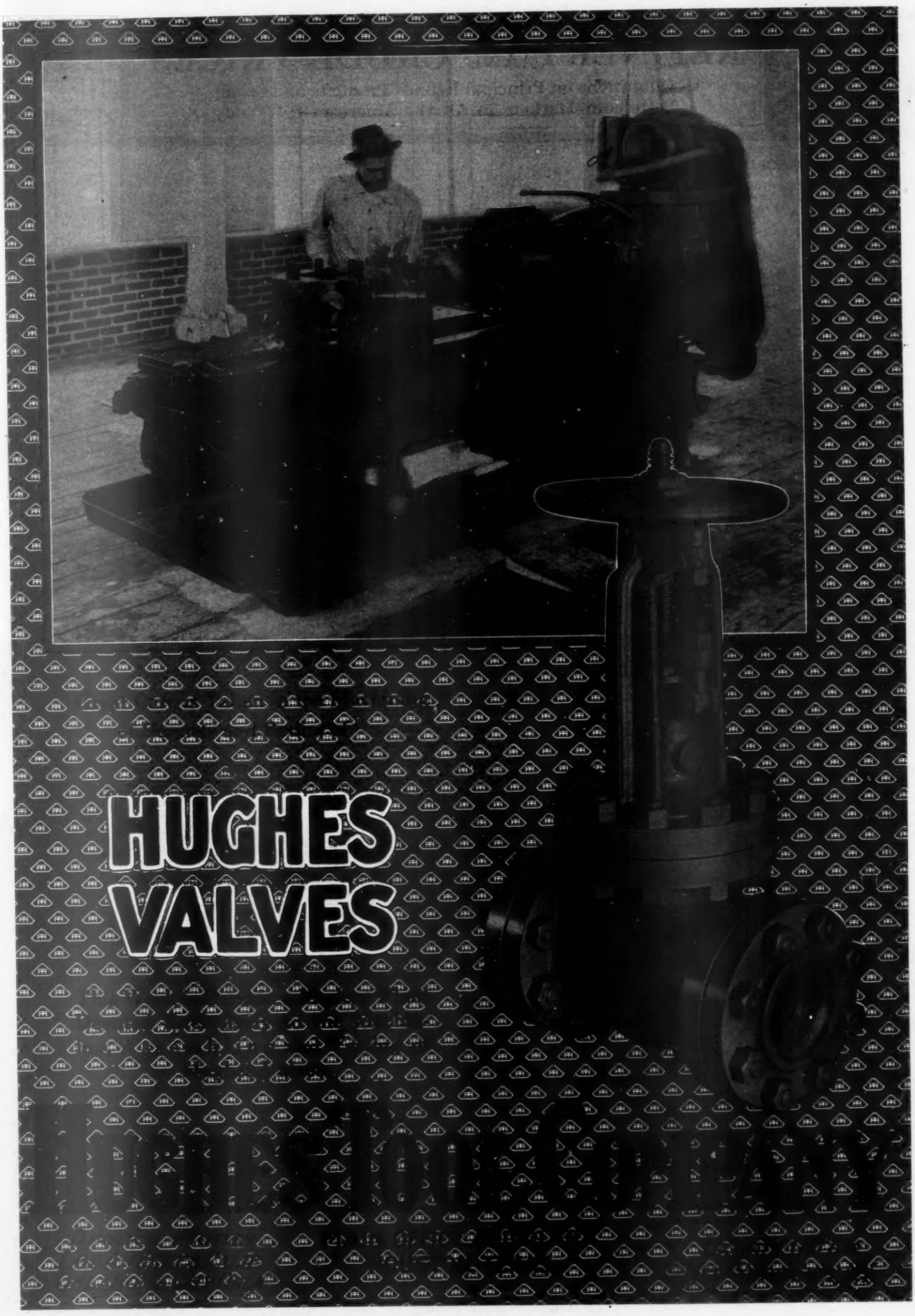
BUY SUNSHINE PLANT AT WICHITA FALLS

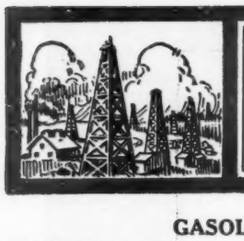
WICHITA FALLS, Tex., Mar. 27.—The Western Oil Corp. of Texas has purchased the 3,000-bbl. skimming plant of the Sunshine Consolidated Refining Co., located just outside the city limits here. The plant was sold by the receiver of the company, E. H. Eddleman, local oil man, who is also vice president of the Texhoma Oil & Refining Co. The consideration was $37,500.

The receiver also sold 134 tank cars to the North American Tank Car Co. for a consideration of $132,500. The transactions this week practically complete the sale of the Sunshine properties which have been in the hands of a receiver for some time. The production of the company and also the pipe lines were recently purchased by the Texhoma Oil & Refining Co. and Bridwell & Heydrick interests.

The company, formerly known as the Sunshine State Refining Co., was organized in 1918 and built the refinery here at that time. The plant had been in constant operation up to December 1 of last year when it was shut down by receiver.

The new owners have not definitely decided whether they will operate the refinery. The company has under consideration the removal of the refinery to the Panhandle Field.


HUGHES
VALVES



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Mar. 30		Mar. 23		Mar. 16	
OKLAHOMA (Group 3)—						
50-52 450 end point	.09¼	.09⅜	.09¼	.09⅜	.09	.09¼
56-58 450 end point	.09⅜	.09⅞	.09½	.09⅝	.09¼	.09½
58-60 437 end point (U. S. Motor)	.10¼		.10	.10¼	.09¾	.10
60-62 400 end point	.11¼	.11½	.11	.11¼	.11	
64-66 375 end point	.12¼	.12½	.12	.12¼	.11⅞	.12
68-70 360 end point	.12⅞	.13	.12⅞	.13	.12¾	.13
KANSAS—						
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10¼	.10½	.10	.10¼
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.09	.09¼	.09	.09¼	.08⅞	.09
50-52 450 end point (Naphtha)	.09⅛	.09⅜	.09⅛	.09⅜	.09	.09⅛
56-58 450 end point	.09⅝	.09¾	.09½	.09⅝	.09¼	.09⅜
58-60 437 end point (U. S. Motor)	.10¼		.10		.09⅝	.09⅞
60-62 400 end point	.11⅜	.11⅝	.11¼	.11⅜	.10⅞	.11
64-66 390 end point	.12⅛	.12⅜	.12	.12¼	.11½	.11¾
64-66 375 end point	.12½		.12¼	.12½	.11¾	.12
68-70 360 end point	.12¾	.13	.13		.12⅝	.13
NORTH LOUISIANA—						
56-58 450 end point	.09¾	.10	.09½	.10	.09¼	.09½
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10	.10½	.10	.10¼
60-62 400 end point	.11½	.11⅝	.11¼	.11½	.11	.11¼
64-66 390 end point	.12¼	.12½	.12	.12¼	.12	.12¼
64-66 375 end point	.12½	.13	.12¼	.12½	.12¼	.12¾
ARKANSAS—						
58-60 450 end point	.10	.10¼	.09¾	.10	.09½	.09¾
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10¼		.10	
64-66 375 end point	.12½	.12¾	.12½	.12¾	.12	.12¼
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.13	.13¼	.13	.13¼	.12¾	.13
PENNSYLVANIA—						
52 Naphtha	.11¼	.11½	.11¼	.11½	.11¼	.11½
54 Naphtha	.11½	.11¾	.11½	.11¾	.11½	.11¾
56 Naphtha	.12	.12¼	.12	.12¼	.12	.12¼
58 Naphtha	.12½	.12¾	.12½	.12¾	.12½	.12¾
60 Gasoline	.13¼	.13½	.13¼	.13½	.13¼	.13½
62 Gasoline	.13¾	.14	.13¾	.14	.14	.14¼
64 Gasoline	.14¼	.14½	.14¼	.14½	.14½	.14¾
66 Gasoline	.16¼	.16½	.16¼	.16½	.16¼	.16½
68-70 Gasoline	.19½	.19¾	.19½	.19¾	.19½	.19¾
CALIFORNIA—						
54-58 437 end point (U. S. Motor) domestic	.12½	.13	.12½	.13	.12½	.13
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.09	.09¼	.09¼		.09¼	
56-58 450 end point	.09¾		.09⅝	.09½	.09¼	.09½
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10	.10¼	.09¾	.10
60-62 400 end point	.11¼	.11½	.11	.11¼	.11¼	.11½
64-66 375 end point	.12¼	.12½	.12		.12	.12¼
68-70 360 end point	.13	.13¼	.12¾	.13	.13	.13¼

*Colorado points.

NATURAL GASOLINE

	Mar. 30		Mar. 23		Mar. 16	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p. rec. 90%	.09		.08¾	.09	.08¾	.09
Grade A, 72-79.9, 375 e.p., rec. 90%	.09	.09¼	.09		.09	
Grade BB, 84-92, 375 e.p., rec. 85%	.08¼		.08	.08¼	.08¼	.08½
Grade B, 76-83.9, 375 e.p., rec. 85%	.08¼		.08¼	.08½	.08½	
Grade C, 80-90, 375 e.p., rec. 78%	.08	.08¼	.08		.08	.08¼
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p. rec. 90%	.09	.09¼	.08¾	.09	.09	
Grade A, 72-79.9, 375 e.p., rec. 90%	.09	.09¼	.08¾	.09	.09	
Grade BB, 84-92, 375 e.p., rec. 85%	.08¼	.08⅝	.08¼	.08½	.08¼	.08½
Grade B, 76-83.9, 375 e.p., rec. 85%	.08¼	.08⅝	.08¼	.08½	.08¼	.08½
Grade C, 80-90, 375 e.p., rec. 78%	.08	.08¼	.08		.08	.08¼
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.09½	.09¾	.09¾	.10	.09¾	.10
Grade B, 76-83.9, 375 e.p., rec. 85%	.09¼	.09½	.09½	.09¾	.09½	.09¾
Grade C, 80-90, 375 e.p., rec. 78%	.09	.09¼	.09	.09½	.09	.09½
CALIFORNIA—						
78-85 absorption, 360-390 end point	.17	.17½	.17	.17½	.17	.17½
78-84 compression, 350 end point	.17	.17½	.17	.17½	.17	.17½
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, e.p., rec. 90%	.09	.09¼	.09	.09¼	.09½	.09¾
Grade A, 72-79.9, 375 e.p., rec. 90%	.09	.09¼	.09	.09¼	.09½	.09¾
Grade BB, 84-92, 375 e.p., rec. 85%	.08¼	.08½	.08¼	.08½	.08¾	
Grade B, 76-83.9, 375 e.p., rec. 85%	.08¼	.08½	.08¼	.08½	.08¾	
Grade C, 80-90, 375 e.p., rec. 78%	.08	.08¼	.08	.08¼	.08½	

MOTOR NATURAL GASOLINE (BLENDS)

	Mar. 30		Mar. 23		Mar. 16	
OKLAHOMA (Group 3)—						
60-62 450 end point	.09½	.09¾	.09½	.09¾	.09⅝	.09¾
64-66 437 end point	.09½	.09¾	.09½	.09¾	.09¾	.10
68-70 430-435 end point	.10	.10¼	.10	.10¼	.10	.10¼
NORTH TEXAS—						
64-66 437 end point	.09¾	.10	.09¾	.10	.09½	.09¾
PENNSYLVANIA—						
*60-62	.12½	.12¾	.12½	.12¾	.12½	.12¾
*64-66	.12¾	.13	.12¾	.13	.12¾	.13
*66-68	.13		.13		.13	
*68-70	.13		.13		.13	
CHICAGO DISTRICT (Based on Group 3)—						
60-62 450 end point	.09½	.09¾	.09½	.09¾	.09¾	
64-66 437 end point	.09¾	.10	.09¾	.10	.10	.10¼

*At Sistersville, W. Va.

BURNING OIL

	Mar. 30		Mar. 23		Mar. 16	
KANSAS—						
41-43 water white Kerosene	.07	.07¼	.07	.07¼	.07¼	.07½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.06⅝	.06¾	.06½	.06¾	.06¾	.06⅞
42-44 water white Kerosene	.07⅛	.07¼	.07	.07¼	.07¼	
NORTH LOUISIANA—						
41-43 prime white Kerosene	.07	.07¼	.07¼	.07½	.07½	.07¾
ROCKY MOUNTAIN STATES—						
*40-41 water white Kerosene	.09⅝	.09¾	.09½	.09¾	.09¾	.09⅞
NORTH TEXAS—						
41-43 water white Kerosene	.07		.06¾	.07	.06¾	.07
ARKANSAS—						
41-43 water white Kerosene	.07¼	.07½	.07¼	.07½	.07¼	.07½
PENNSYLVANIA—						
43 Kerosene prime white	.08	.08¼	.08	.08¼	.08	.08¼
45 Kerosene water white	.08⅜	.08⅞	.08½	.08¾	.08½	.08¾
46 Kerosene water white	.09⅜	.09½	.09⅜	.09½	.09⅜	.09½
47 Kerosene water white	.09⅞	.10	.09⅞	.10	.09⅞	.10
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom Neutral	.08¾	.09	.08¾	.09	.08¾	.09
36 Miners' Neutral	.07	.07¼	.07	.07¼	.07	.07¼
300 Mineral Seal	.07¾	.08	.07¾	.08	.07¾	.08
CALIFORNIA—						
38-40 water white (high burning test)	.09	.10	.09	.10	.07½	.08
Engine distillate, 43-45 445 end point	.11	.11½	.11	.11½	.08½	.09
Engine distillate, 42-44 450 end point	.10¾	.11	.10¾	.11	.08¼	.08½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.06⅝	.06¾	.06⅝	.06¾	.06¾	.06⅞
42-44 water white Kerosene	.07	.07⅛	.07	.07⅛	.07⅛	.07¼

*Colorado points.

FUEL OILS

	Mar. 30		Mar. 23		Mar. 16	
KANSAS—						
24-26 Fuel Oil	1.40	1.45	1.40	1.45	1.30	1.35
32-36 Gas Oil	.04⅛	.04¼	.04⅛	.04¼	.04	.04⅛
38-40 Distillate	.04⅜	.04½	.04⅜	.04½	.04¼	.04½
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.25	1.27½	1.20	1.22½	1.17½	1.20
22-26 Fuel Oil (sellers' cars)	1.27½	1.32½	1.22½	1.25	1.20	
24-26 Fuel Oil (sellers' cars)	1.35		1.30	1.32½	1.25	
26-30 Fuel Oil (sellers' cars)	1.40	1.45	1.35	1.40	1.35	1.40
28-30 Fuel Oil (sellers' cars)	1.45	1.50	1.45	1.50	1.45	1.50
32-36 Gas Oil (dark)	.04	.04⅛	.04	.04⅛	.03⅞	.04
32-36 Gas Oil (light)	.04⅛	.04¼	.04	.04¼	.04	
36-38 Distillate	.04¼	.04⅜	.04¼	.04⅜	.04⅛	.04¼
38-40 Straw Distillate	.04⅜	.04½	.04⅜	.04½	.04¼	.04⅜
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.45	1.50	1.40	1.45	1.40	1.45
32-36 Gas Oil (dark)	.04		.04		.03⅞	
32-36 Gas Oil (light)	.04	.04⅛	.04	.04⅛	.03⅞	.04
38-40 Straw Distillate	.04¼	.04⅜	.04¼	.04⅜	.04⅛	.04¼
NORTH LOUISIANA—						
18-20 Fuel Oil	1.15	1.20	1.20	1.25	1.20	
32-36 Gas Oil	.04⅛	.04¼	.04⅛	.04¼	.04	.04⅛
ARKANSAS—						
38-40 Distillate	.04½		.04¼	.04½	.04¼	.04½
32-36 Gas Oil	.04	.04¼	.04		.04	
16-20 Refinery Fuel Oil	1.15	1.20	1.10	1.15	1.10	1.15
GULF COAST (South Texas)—						
Gas Oil	.05	.05¼	.05	.05¼	.05	.05¼
Fuel Oil	1.65	1.70	1.65	1.70	1.65	1.70
PENNSYLVANIA—						
30-34 Fuel Oil	.05¾	.06	.05¾	.06	.05¾	.06
36-40 Fuel Oil	.06	.06¼	.06	.06¼	.06	.06¼
CALIFORNIA—						
33-36 Distillate	.05¼	.05½	.05¼	.05½	.04¾	.05
27-35 Distillate	.04½	.05	.04½	.05	.04	.04½
15-20 Fuel Oil (at tidewater)	1.00	1.04	1.00	1.04	1.00	1.04
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars, Group 3)	1.30	1.35	1.30	1.32½	1.22½	1.25
22-26 Fuel Oil (sellers' cars)	1.25	1.30	1.25	1.27½	1.22½	1.25
18-22 (El Dorado)	1.20	1.25	1.22½	1.25	1.15	1.17½
18-20 (Smackover)	1.10	1.15	1.12½	1.15	1.10	1.12½
32-36 Gas Oil	.04⅛	.04¼	.04	.04¼	.03⅞	.04
36-38 Distillate	.04⅛	.04¼	.04¼	.04⅜	.04	.04⅛
38-40 Straw Distillate	.04½	.04⅝	.04⅜	.04½	.04¼	.04⅜

LUBRICATING OILS AND WAX

	Mar. 30		Mar. 23		Mar. 16	
OKLAHOMA (Group 3)—						
70-80 vis., 2½ color, 20-25 cold test	.06	.07	.06	.07	.06	.07
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
100 vis., 2 color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
150 vis., 4 color, 20-25 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 3 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 4 color, 23-28 cold test	.11	.11½	.11	.11½	.11	.11½
200 vis., 3 color, 23-28 cold test	.10½	.11½	.10½	.11½	.10½	.11½
220 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
220 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
280 vis., 4 color, 25-30 cold test	.15½	.16½	.15½	.16½	.15½	.16½
280 vis., 3 color, 25-30 cold test	.16¼	.17	.16¼	.17	.16¼	.17
180 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 5 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
220 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 5 color, 25-30 cold test	.13	.14	.13	.14	.13	.14
280 vis., 5 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
Cylinder Stocks:						
180-200 vis., S. R. green, 40-45 cold test	.08½	.11	.08½	.11	.08¼	.11
190-200 vis., S. R. green, 40-45 cold test	.08	.08½	.08	.08½	.08	.08½
170-190 dark green, 40-45 cold test	.06	.06½	.06	.06½	.06	.06½
190-200 vis. @ 210 "D" Bright Stock	.33	.35	.33	.35	.33	.35
200-210 vis. @ 210 "E" Bright Stock	.30	.31	.30	.31	.30	.31

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

150 vis. @ 210 "E" Bright Stock	.27	.28	.27	.28	.27	.28
150 vis. @ 210 "D" Bright Stock	.28	.31	.28	.31	.28	.31
Waxes:						
122-124 White Crude Scale Wax	.04¾	.05	.04¾	.05	.04¾	.05
PENNSYLVANIA—						
150, 3 color	.21½		.22		.22	
180, 3 color	.26		.26		.26	
200, 3 color	.27¾		.28		.28	
220, 3 color	.30		.30		.30	
600, steam refined	.15¾		.16½		.16½	
635, steam refined	.19½		.20		.20	
650, steam refined	.21		.21½		.21½	
600, Pennsylvania flash	.27		.27		.27	
630, Pennsylvania flash	.35		.36		.36	
*550, E filtered	.20¾		.20¾		.20¾	
600, E filtered	.20½		.21¼		.21¼	
*600, E filtered	.21½		.22¾		.22¾	
600, D filtered	.27½		.27½		.27½	
550, E filtered	.20		.20		.20	
550, D filtered	.22¼		.22¼		.22¼	
Pennsylvania Bright Stock	.37		.37½		.37½	
122-124 White Crude Scale Wax	.05⅝	.05½	.05⅝	.05½	.05⅝	.05½
†124-126 White Crude Scale Wax	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07½	.08	.07½	.08	.07½	.08
No. 2½ color, 150 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3 color, 200 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 3½ color, 300 vis., pale oil	.13	.13½	.12½	.14	.12½	.14
No. 3¾ color, 500 vis., pale oil	.15	.15½	.15½	.16	.15½	.16
No. 4 color, 750 vis., pale oil	.18½	.19	.18½	.19	.19½	.20
No. 1½ plus color, 150 vis., pale filtered	.22		.22		.22	
No. 2 plus color, 200 vis., pale filtered	.23½		.23½		.23½	
No. 2 color, 300 vis., pale filtered	.27½		.27½		.27½	
No. 2½ color, 500 vis., pale filtered	.31½		.31½		.31½	
No. 2½ color, 750 vis., pale filtered	.41½		.41½		.41½	
No. 5 to 6 color, 200 vis., red oil	.09½	.10	.09½	.10	.09½	.10
No. 5 to 6 color, 300 vis., red oil	.11½	.12	.11½	.12	.11½	.12
No. 5 to 6 color, 500 vis., red oil	.13	.13½	.13	.13½	.13	.13½
No. 5 to 6 color, 750 vis., red oil	.17	.18	.17	.18	.19	.19½
CALIFORNIA—						
130 pale, 2½-3 color	.10	.11½	.10	.11½	.10	.11½
200 vis., 2½-3 color	.13½	.14½	.13½	.14½	.13½	.14½
300 vis., 3 -3½ color	.15	.16	.15	.16	.15	.16
350 vis., 3½-4 color	.16½	.17½	.16½	.17½	.16½	.17½
400 vis., 3½-4 color	.18	.19	.18	.19	.18	.19
Red Neutrals:						
200 vis., 4½-5 color	.12	.13	.12	.13	.12	.13
300 vis., 5 -6 color	.13	.14	.13	.14	.13	.14
400 vis., 5 -6 color	.15	.16	.15	.16	.15	.16
500 vis., 4½-5 color	.18	.19	.18	.19	.18	.19
500 vis., 6 -6½ color	.16	.17	.16	.17	.16	.17
600 vis., 6½ plus color	.17	.18	.17	.18	.17	.18

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Mar. 30	Mar. 23	Mar. 16
U. S. Motor Gasoline, 58-60 437	.13	.13	.13
*Bunker Oil, 14-16 Be.	1.75	1.75	1.75
*Diesel Oil, New York City	2.30	2.30	2.30
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 28 plus	.06	.06	.06
41-43 Kerosene prime white	.08½	.08½	.08½

*Lighterage 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Mar. 30	Mar. 23	Mar. 16
58-60 Be. gravity, in cases	.27.90	.27.90	.27.90
Standard white Kerosene, in cases	.18.40	.18.40	.18.40
Water white Kerosene, in cases	.19.90	.19.90	.19.90
Export Gasoline, 64-66 Be.	.16	.16	.16
†Lubricating Oils (in bulk):			
Cylinder Stock, light filtered, 600 s.r.	.29	.29	.29
No. 5 Bright Stock, .897 spec. grav.	.40	.40	.40
No. 1 White Neutral, .878 spec. grav.	.35	.35	.35
Pale Oil, "25" .898 spec. grav.	.12	.12	.12
Pale Oil, "28" .892 spec. grav.	.07½	.07½	.07½
No. 3 red oil, 160 vis., 7 color	.10¾	.10¾	.10¾
No. 2 red oil, .903 spec. grav.	.11½	.11½	.11½
No. 1 red oil, .905 spec. grav., 265 vis.	.13	.13	.13
Polar red oil, .903 spec. grav., 295 vis.	.13½	.13½	.13½
Paraffin Wax:			
120-122 a.m.p., per lb.	.06⅛	.06⅛	.06⅛
125-127 a.m.p., per lb.	.06¼	.06¼	.06¼
130-132 a.m.p., per lb.	.06½	.06½	.06½
135-137 a.m.p., per lb.	.07⅛	.07⅛	.07⅛
Petrolatum, in bbls., car load lots, per lb.:			
Amber	.03⅜	.03⅜	.03½
Light amber	.03⅝	.03⅝	.03¾
Cream	.06	.06	.06
Lily white	.08	.08	.08
Snow white	.09½	.09½	.10

†All lub prices in barrels.

LOS ANGELES EXPORT PRICES

	Mar. 30		Mar. 23		Mar. 16	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor Gasoline, 54-56 437 e.p.	.10	.11½	.10	.11½	.10	.11½

CRUDE OIL PRICES

OKLAHOMA, KANSAS AND NORTH TEXAS

***Prairie Oil & Gas Co.**
(Oklahoma, Kansas and North and East Central Texas.)

28° to 28.9°	$1.40
29° to 29.9°	1.48
30° to 30.9°	1.56
31° to 31.9°	1.64
32° to 32.9°	1.75
33° to 33.9°	1.80
34° to 34.9°	1.88
35° to 35.9°	1.96
36° to 36.9°	2.04
37° to 37.9°	2.12
38° to 38.9°	2.20
39° to 39.9°	2.28
40° to 40.9°	2.36
41° to 41.9°	2.44
42° to 42.9°	2.52
43° to 43.9°	2.60
44° to 44.9°	2.68
45° to 45.9°	2.76
46° to 46.9°	2.84
47° to 47.9°	2.92
48° to 48.9°	3.00
49° to 49.9°	3.08
50° to 50.9°	3.16
51° to 51.9°	3.24
52° and above	3.32

*Other major purchasers except as noted below.

Champlin Refining
(Garber and Tonkawa)
Schedule based on Prairie Oil & Gas Co. paying 10 cents additional for each grade of crude above 38° gravity.

Humble Oil & Refining Co.
(North Texas, Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran and Lytton Springs)

Below 25°	$1.08
25° to 25.9°	1.16
26° to 26.9°	1.24
27° to 27.9°	1.32

Other grades same as Prairie Oil & Gas Co.

Magnolia Petroleum Co.
(Oklahoma, Kansas and North and East Central Texas, except Corsicana heavy, and Lytton Springs of South Central Texas.)

Below 28°	$1.20

Other grades same as Prairie Oil & Gas Co.

Iatan	1.15
Corsicana heavy	1.15
(Panola County)	
34° to 34.9°	1.70
35° to 37.9°	1.85
38° and above	2.00

Texhoma Oil & Refining Co.
(Wichita Falls, Texas, District.)

Below 32°	$1.88
32° to 32.9°	1.94
33° to 33.9°	2.00
34° to 34.9°	2.06
35° to 35.9°	2.12
36° to 36.9°	2.18
37° to 37.9°	2.24
38° to 38.9°	2.30
39° to 39.9°	2.36
40° to 40.9°	2.42
41° to 41.9°	2.48
42° to 42.9°	2.54
43° to 43.9°	2.60
44° and above	2.69

Gypsy Oil Co.
(Bristow, Glenn Pool, Morris and Perryman, Okla.)

25° to 25.9°	1.16
26° to 26.9°	1.24
27° to 27.9°	1.32

Other grades same as Prairie Oil & Gas Co.

TEXAS PANHANDLE

Kay County Gas Co.
Magnolia Petroleum Co.

Below 31°	1.15
31° to 33.9°	1.30
34° to 36.9°	1.50
37° to 39.9°	1.65
40° and above	1.70

GULF COAST

***Humble Oil & Refining Co.**

Grade A	1.50
Grade B	
Below 25°	1.25
25° to 25.9°	1.30
26° to 26.9°	1.35
27° to 27.9°	1.40
28° to 28.9°	1.45
29° to 29.9°	1.50
30° and above	1.55
Sour Lake (36° gravity)	1.79
Boling	1.50
Piedras Pintas (deep sand)	1.75
High Island	1.25

*And other major purchasers, including The Texas Co., and the Sun Oil Co.. High Island crude posted by the Sun Oil Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

***Magnolia Petroleum Co.**

Luling (contract)	1.20
Mirando (Webb, Jim Hogg and Zapata Counties	1.15
Rockdale-Minerva (Milam County)	1.25
Thrall	1.00
Callihan (Live Oak and McMullen Counties)	1.65
‡Lockhart (Lytton Springs)	....
‡Somerset	....

*Texpata Pipeline Co. also posts in Mirando Field paying same prices as Magnolia Petroleum Co. Crown Central Petroleum Co. pays $1.20 for Mirando crude.
‡Lockhart and Somerset prices same as for North and East Central Texas. Lockhart posted by Magnolia Petroleum Co. and Humble Oil & Refining Co. Somerset is posted by Grayburg Oil Co.

ARKANSAS AND NORTH LOUISIANA

Standard Oil Co. of Louisiana

Caddo below 32°	1.85
32° to 34.9°	2.00
35° to 37.9°	2.10
38° and above	2.20
Homer below 31°	1.60
31° to 32.9°	1.75
33° to 34.9°	1.85
35° and above	1.95
Haynesville below 33°	1.75
33° and above	1.85
El Dorado below 33°	1.75
33° and above	1.85
Bull Bayou, 32° to 34.9°	1.70
35° to 37.9°	1.85
38° and above	2.00
Cotton Valley	1.10
DeSoto	2.05
Crichton	1.85
Bellevue	1.50
Smackover, below 24°	1.00
24° to 24.9°	1.25
25° to 25.9°	1.30
26° to 26.9°	1.35
27° and above	1.40
*Stephens, Ark., below 26°	1.30
26° and above	1.50
**Calion (East El Dorado)	.95
§Urania	1.40

Other companies posting in these fields are: Gulf Pipe Line Co.; Atlantic Oil Producing Co. in Homer, Haynesville and Smackover; The Texas Co. in Caddo, Bull Bayou, DeSoto, Crichton and Smackover.

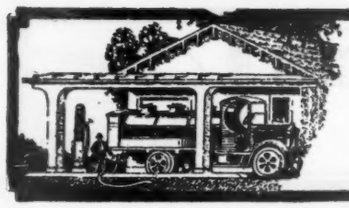
*Posted by the Atlantic Oil Producing Co.
**Posted by the Gulf Pipe Line Co.
§Posted by the Louisiana Oil Refinning Corp.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Rock Creek (Wyo.)	2.00
Salt Creek:	
29° to 29.9°	1.48
30° to 30.9°	1.56
31° to 31.9°	1.64
32° to 32.9°	1.72
33° to 33.9°	1.80
34° to 34.9°	1.88
35° to 35.9°	1.96
36° to 36.9°	2.04
37° and above	2.12
Big Muddy	2.00
Mule Creek	1.50
Grass Creek, light	2.15
Grass Creek, heavy	.90
Elk Basin	2.15
Lance Creek	2.15
Osage	2.15
Lost Soldier (contract)	1.10
Greybull-Torchlight	1.90
Hamilton Dome	1.35
Cat Creek (Mont.)	2.15
Sunburst (Mont.)	1.15
Florence (Colo.)	1.35
Hogback (N. M.)	2.20

(Continued on Page 144)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Mar. 30.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Chicago Dist.—				
†Less than 100 gals.	17.0	19.0	...	12.0
Davenport, Ia.	19.5	21.5	2.0	12.9
Des Moines	19.5	21.5	2.0	12.9
Keokuk	19.5	21.5	2.0	12.9
Sioux City	19.0	21.0	2.0	21.5
Duluth, Minn.	20.5	22.5	2.0	13.6
Minneapolis	20.5	22.5	2.0	13.6
La Crosse, Wis.	20.2	22.2	2.0	13.1
Milwaukee	19.1	21.1	2.0	13.3
Madison	19.3	21.3	2.0	12.5
Detroit, Mich.	19.8	21.8	2.0	13.2
Grand Rapids	19.7	21.7	2.0	13.1
Saginaw	19.9	21.9	2.0	13.3
Evansville, Ind.	20.9	22.0	3.0	12.5
Fort Wayne	20.4	22.4	3.0	12.9
Indianapolis	20.2	22.2	3.0	12.7
South Bend	20.4	22.4	3.0	12.9
Fargo, N. D.	20.9	22.9	1.0	15.6
Huron, S. D.	19.0	21.0	3.0	14.1
Sioux Falls	19.0	21.0	3.0	13.6
*K. C. Mo.	19.9	21.9	3.0	11.3
*Springfield	19.8	21.8	3.0	12.2
*St. Louis	18.6	20.9	2.5	12.0
*St. Joseph	19.0	21.0	2.5	11.9
Wichita, Kan.	18.3	20.3	2.0	11.8
Bartlesville, Ok.	17.4	19.4	3.0	10.9

*State tax is 2c. Remainder is city tax.
†Quantity price on more than 100 gallons, 16.0.

The following monthly rebate system is effective on tank wagon schedules throughout the territory of Standard Oil Co. of Indiana: Over 750 gallons, ½c; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1¼ cents; over 10,000 gallons, 2 cents. If quantity bought during the year is equal to 12 times the monthly agreed purchases the discount will be paid or credited on the entire quantity less monthly payments. Service station customers will receive discount of 1 cent a gallon on purchases amounting to 200 gallons a month or 2,400 gallons a year; and 2 cents a gallon on 600 gallons a month or 7,200 gallons a year.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Atlantic City	16.0	....	...	15.0
Newark, N. J.	16.0	18.0	...	15.0
Annapolis, Md.	18.0	....	2.0	15.0
Baltimore	18.0	21.0	2.0	15.0
Cumberland	18.0	21.0	2.0	15.0
Washington	18.0	21.0	2.0	15.0
Danville, Va.	21.5	....	4.5	15.0
Norfolk	21.5	24.5	4.5	15.0
Petersburg	21.5	....	4.5	15.0
Richmond	21.5	24.5	4.5	15.0
Roanoke	21.5	24.5	4.5	15.0
Charleston, W. Va.	20.0	23.0	3.5	15.0
Keyser	20.0	....	3.5	15.0
Parkersburg	20.0	23.0	3.5	15.0
Wheeling	20.0	23.0	3.5	15.0
Charlotte, N. C.	21.0	24.0	4.0	15.0
Hickory	21.0	....	4.0	15.0
Mt. Airy	21.0	....	4.0	15.0
Salisbury	21.0	....	4.0	15.0
Charleston, S.C.	22.0	25.0	5.0	15.0
Columbia	22.0	25.0	5.0	15.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Atlanta, Ga.	23.0	26.0	3.5	17.0
Augusta	23.0	26.0	3.5	17.0
Macon	23.0	26.0	3.5	17.0
Savannah	20.0	23.0	3.5	15.0
Birm'gham, Ala	20.0	23.0	3.0	16.5
Mobile	19.0	22.0	3.0	15.5
*Montgomery	21.0	24.0	3.0	17.5
Clarksdale, Miss	20.0	23.0	3.0	14.5
Jackson	20.0	23.0	3.0	13.5
Natchez	19.5	22.5	3.0	14.0
Vicksburg	19.5	22.5	3.0	14.0
Jack'ville, Fla.	21.0	24.0	4.0	15.0
Miami	23.0	26.0	4.0	16.5
Pensacola	21.0	24.0	4.0	15.5
Tampa	21.0	24.0	4.0	15.0
Covington	23.0	26.0	5.0	16.0
Louisville	23.0	26.0	5.0	15.0
Lexington, Ky.	22.0	25.0	5.0	16.0

*In addition to the state tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
*Pittsburgh, Pa.	17.0	22.0	...	16.0
*Philadelphia	17.0	22.0	...	16.0
*Scranton	17.0	22.0	...	16.0
*Allentown	17.0	22.0	...	16.0
Altoona	17.0	22.0	...	16.0
*Erie	17.0	22.0	...	16.0
Dover, Del.	19.0	22.0	2.0	16.0
Wilmington	19.0	22.0	2.0	16.0
Spring'fd, Mass.	18.0	20.0	...	16.0
Worcester	18.0	20.0	...	16.0
Boston	18.0	21.0	...	16.0
Providence, R.I.	19.0	22.0	1.0	16.0
Hartford, Conn.	20.0	23.0	2.0	15.0
New Haven	20.0	23.0	2.0	16.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

SOUTHWESTERN DISTRICT

***Magnolia Petroleum Co.**

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Dallas, Tex.	15.0	17.0	1.0	12.0
Fort Worth	14.0	16.0	1.0	11.0
Houston	16.0	18.0	1.0	12.0
San Antonio	15.0	17.0	1.0	11.0
El Paso	18.0	20.0	1.0	13.0
Texarkana	17.5	20.5	1.0	13.0
Muskogee, Ok.	17.0	20.0	3.0	10.0
Oklahoma City	17.0	20.0	3.0	12.0
Tulsa	17.0	20.0	3.0	12.0
Little Rock	18.5	21.5	4.0	14.5
Ft. Smith, Ark.	18.5	21.5	4.0	14.5

*The following is the schedule of discounts on gasoline adopted by the Magnolia Petroleum Co. in Texas sales and the discounts are graded according to gallonage: Over 750 gallons a month, ½ cent; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1½ cents; over 400 gallons, 1½ cents; over 500 gallons, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases as in the tank wagon discounts.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
All Ohio points	21.0	23.0	2.0	14.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Denver, Colo.	20.0	20.0	2.0	15.5
Pueblo	19.0	19.5	2.0	15.5
Casper, Wyo.	20.5	22.5	2.5	14.0
Cheyenne	21.5	23.5	2.5	15.5
Butte, Mont.	22.0	22.0	2.0	17.0
Helena	24.0	26.0	2.0	18.0
Salt Lake, Utah	25.0	27.0	3.5	18.0
Boise, Idaho	26.0	28.0	3.0	20.0
Albuquerque, N. Mex.	24.5	27.5	3.0	17.5

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Albany, N. Y.	19.0	....	...	16.0
*New York	19.0	....	...	16.0
Buffalo	19.0	....	...	16.0
Rochester	17.0	....	...	16.0
Syracuse	18.0	....	...	16.0
Boston, Mass.	19.0	....	...	....
Providence, R.I.	20.0	....	1.0	....
Augusta, Me.	22.0	....	3.0	16.0
Manchester, N. H.	21.0	....	2.0	16.0
Burlington, Vt.	21.0	....	2.0	16.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
San Francisco	18.0	22.0	2.0	15.5
Los Angeles	16.5	20.5	2.0	15.5
Fresno	18.5	22.5	2.0	17.5
Reno, Nev.	23.5	27.5	4.0	19.0
Portland, Ore.	19.0	23.0	3.0	16.5
Seattle, Wash.	18.0	22.0	2.0	16.5
Spokane	22.0	26.0	2.0	20.5
Tacoma	18.0	22.0	2.0	16.5
Phoenix, Ariz.	25.0	28.0	3.0	21.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Omaha	18.25	20.25	3.0	12.5
Crawford	20.0	....	2.0	13.25
McCook	20.75	22.75	2.0	14.0
Norfolk	19.75	21.75	2.0	13.0
North Platte	20.75	22.75	2.0	13.75
Scottsbluff	20.25	22.25	2.0	13.25

CALIFORNIA
Standard Oil Co.-Union Oil Co.

Gravity—	Long Beach Huntington Beach Richfield Brea-Olinda Rosecrans-Dom'gues Torrance-Inglewood	Whittier La Habra Montebello	Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge	Coyote	Santa Fe Springs	Coalinga	Wheeler Ridge	Santa Maria Ventura Salt Lake
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.87	.85	.75	.85	....	.75	.75	.85
16°	.90	.85	.75	.85	....	.75	.75	.85
17°	.94	.85	.75	.85	....	.75	.75	.85
18°	.98	.86	.75	.86	....	.75	.75	.85
19°	1.04	.87	.75	.87	....	.75	.75	.85
20°	1.10	.89	.82	.90	.89	.79	.78	.90
21°	1.16	.91	.90	.98	.91	.86	.81	.97
22°	1.22	.94	1.00	1.06	.94	.93	.85	1.04
23°	1.28	.97	1.11	1.14	.97	1.00	.89	1.11
24°	1.34	1.01	1.22	1.22	1.02	1.07	.93	1.18
25°	1.40	1.05	1.33	1.30	1.08	1.14	.97	1.25
26°	1.46	1.09	1.44	1.38	1.16	1.21	1.01	1.32
27°	1.52	1.13	1.55	1.46	1.24	1.28	1.05	1.39
28°	1.58	1.17	1.66	1.54	1.32	1.35	....	1.46
29°	1.64	1.21	1.77	1.62	1.40	1.42	....	1.53
30°	1.70	1.25	1.88	1.70	1.48	1.49	....	1.60
31°	1.76	....	1.99	....	1.60	1.56	....	1.67
32°	1.84	....	2.10	....	1.72	1.63	....	1.73
33°	1.92	....	2.21	....	1.84	1.70	....	1.79
34°	2.00	....	2.32	....	1.96	1.77	....	1.85
35°	2.08	....	....	....	2.08	1.84	....	1.92
36°	2.16	....	....	....	2.16	....	....	....
37°	2.24	....	....	....	2.24	....	....	....
38°	2.34	....	....	....	2.34	....	....	....
39°	2.44	....	....	....	2.44	....	....	....
40°	2.54	....	....	....	....	....	....	....
41°	2.64	....	....	....	....	....	....	....
42°	2.74	....	....	....	....	....	....	....

*Column 2—Long Beach and Huntington Beach crudes, 14 to 23 degrees, inclusive; Richfield and Brea-Olinda, 14 to 30 degrees; Torrance and Inglewood, 14 to 28; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.
Column 3—Whittier and La Habra crudes, 14 to 23 degrees; Montebello, 14 to 30 degrees.
Column 4—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset and Elk Hills, 14 to 23 degrees; Lost Hills and Belridge, 14 to 34 degrees.
Column 6—Santa Fe Springs. Only Union Oil Co. posts below 24 degrees.
Column 9—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees. Posted only by Union Oil Co.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
*New Orleans	17.0	20.0	3.0	13.5
Alexandria	16.5	19.5	3.0	14.5
Baton Rouge	16.5	18.5	3.0	13.0
LaFayette	17.5	19.5	3.0	14.0
Lake Charles	17.0	20.0	3.0	14.5
Shreveport, La.	15.5	18.5	3.0	13.5
Memphis, Tenn.	18.0	21.0	3.0	14.5
Chattanooga	18.5	21.5	3.0	15.0
Knoxville	19.0	22.0	3.0	15.5
Nashville	18.5	21.5	3.0	15.0
Bristol	19.5	22.5	3.0	15.0
Little Rock, Ark	18.5	21.5	4.0	14.5

*Tax of 3 cents includes city tax of 1 cent.

CRUDE PRICE CHANGES

March 17—Sun Pipe Line Co. advanced High Island crude 5 cents and placed Grade B Gulf Coast crude on gravity basis, adopting same schedule as Humble Oil & Refining Co.

March 20—Magnolia Petroleum Co. posted Panola County, northeast Texas, crude, listing three grades as follows: 32 to 34.9 gravity, $1.70; 35 to 37.9 gravity, $1.85, and 38 gravity and above, $2.00.

TANK WAGON PRICE CHANGES

March 26—Magnolia Petroleum Co. revised service station prices in Texas, making the differential above tank wagon prices 2 cents.

March 31—Standard Oil Co. of New York advanced gasoline 1 cent. The change is shown in the accompanying table of prices in effect March 30.

F. S. RATLIFF DEAD

CHATHAM, Ont., Mar. 27.—F. S. Ratliff, for some years prominent in oil development operations in the Medicine Hat and Many Islands Lakes Fields of Southern Alberta, died recently.

CRUDE OIL PRICE

(Continued from Page 143)

Artesia 1.70

Note: Salt Creek, Osage, Cat Creek and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency

Penna Grade Oil in New York Transit Lines (New York)	3.90
Bradford District Oil in National Transit Lines (Pennsylvania)	3.90
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.80
Penna Grade Oil in Southwest Pa. Pipe Lines (Pennsylvania)	3.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	3.75
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.65
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.20
Corning Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.35
Somerset Medium Oil in Cumberland Pipe Line Lines (Kentucky)	2.30
Somerset Light Oil in Cumberland Pipe Line Lines (Kentucky)	2.45
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky)	1.15
Gaines (Pennsylvania)	2.95
Keister (Pennsylvania)	2.45

MIDDLE WESTERN STATES

Ohio Oil Co.

Lima	2.23
Wooster	2.25
Illinois	2.12
Indiana	2.00
Princeton	2.12
Plymouth	1.65
Waterloo	1.10
*Western Kentucky, 32.9° and below	1.85
33° to 35.9°	1.95
36° to 38.9°	2.05
39° and above	2.15
**Cumberland, Barren and Monroe Counties	2.45
†Oil Springs (Canada)	2.70
†Petrolia (Canada)	2.63

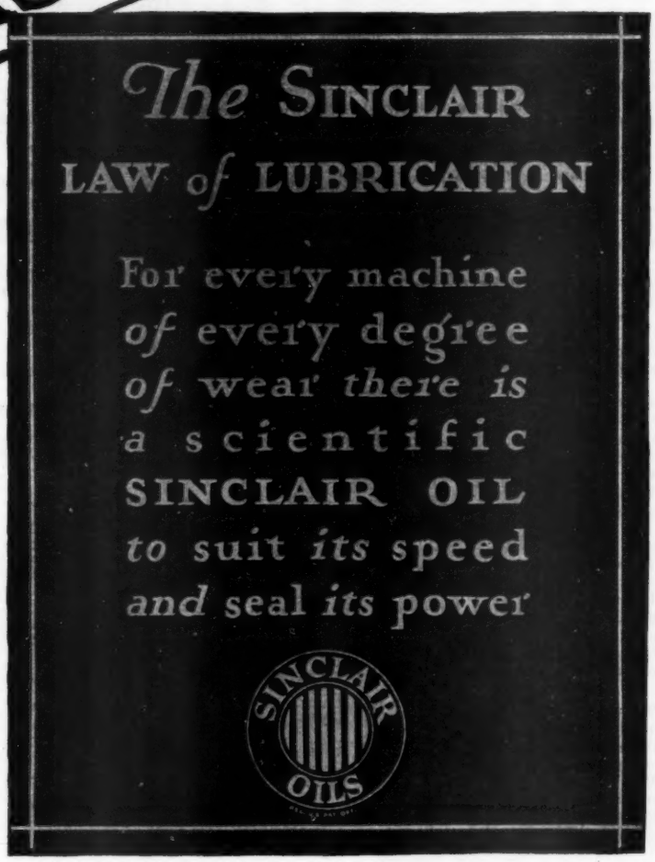
*Posted by Indian Refining Co.
**Posted by Paragon Development Co.
†Posted by Imperial Oil Co., Ltd.

MEXICAN

*Tuxpam light (f.o.b. Mex. ports)	$1.35
§Panuco heavy (f.o.b. Mex. Ports)	1.15
Tuxpam (New York)	2.05
Panuco (New York)	1.70

*Plus 30.33c tax. § 16.93c tax.

WAR on WASTE!



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Some Oil Issues Hold Up; Others Weak

Compare Favorably With Groups of Other Securities. Divided Opinion on Market Prospects in Immediate Future

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, 30 Church St., New York

NEW YORK, Mar. 29.—Oil securities were in supply during the past week, and while they held up in some instances better than other groups, there were many weak spots. Associated Oil, Houston Oil and Producers & Refiners were particularly heavy.

For more than a year Wall Street has been looking for a big advance in oil securities, involving practically all issues, and reaching sensational proportions.

This feeling, according to students of the market, was due largely to the steady progress made by the oil business since the collapse of 1921; also to the fact that issues of other big industrial groups had been advanced sensationally—so why not the oils, which have had a reputation for fluctuating widely?

Now the stock market is tending downward. The decline, in issues which have advanced sensationally, has been sensational. There are two schools of thought with regard to the future of the market. There are those who believe the present reaction "technical"—a move to eliminate weak holdings, held on thin margins. There are also those who believe liquidation is going on based on the theory that present prices will not hold and will not be reached again for many years in many of the issues which have advanced most.

Those who believe the reaction "technical" also believe stocks will have a renewed sensational advance, probably this spring. They believe this upturn will be led by the oil issues. They point out that in the recent weak markets oils have held up unusually well.

How Oils Have Acted

That oil stocks as a whole have advanced considerably during the past two years is shown in the following table, giving 1926 high quotations, 1925 low and 1924 low of some leading issues:

	1926 High	1925 Low	1924 Low
Associated Oil	59¼	32	27⅝
Barnsdall Corp. "A"	33½	18⅜	14
General Petroleum	63¼	42	38⅝
Independent Oil & Gas	34	13½	5⅝
Marland Oil	60¼	32⅝	29
Pacific Oil	53¼	51¼	45
Pan American P. & T.	76½	59½	44½
Phillips Petroleum	49¼	36¼	28½
Shell Union Oil	28¼	21⅝	15⅝
S. O. of California	62¼	51½	55½
S. O. of New Jersey com.	56⅝	38⅝	33
International Pet., Ltd.	35¼	22¼	16⅞
Prairie Oil & Gas	66¼	45⅝	48¼
S. O. of Indiana	70½	59½	54¼
Vacuum Oil	109⅝	80½	50½
Humble Oil & Ref.	99⅝	42½	36
Gulf Oil Corp.	93⅝	63½	56

The more conservative element say that after the advances indicated in the table it is not at all certain oil securities as a group will go higher, especially if the general market situation remains weak. For this reason they advise a waiting attitude, and recommend the purchase of only the soundest stocks.

Tide Water Associated Oil

A banking syndicate during the week offered for sale $46,000,000 Tide Water Associated Oil Co. convertible 6 per cent cumulative preferred stock. In connection with this financing, it is stated that the company has no mortgage or funded debt. Its approximate capitalization, based on the acquisition by the new company of 80 per cent of Associated Oil Co. stock and 75 per cent Tide Water Oil Co. common stock, and including common stock sold or to be sold for cash, is as follows:

	Author'd Shares	*Outstanding Shares
Conv. 6 per cent cumul. pfd. (par $100)	1,500,000	610,777
Common stock (no par value)	10,000,000	4,469,577

*The outstanding shares would be further increased through the exchange of stock of Associated Oil Co. held by the depositaries and now in process of exchange under the offers.

There are now outstanding $22,547,000 6 per cent notes of the Associated Oil Co. and about $20,683,400 5 per cent convertible preferred stock of the Tide Water Oil Co. and in addition approximately $1,564,000 miscellaneous purchase money obligations of the latter company. Sufficient preferred stock of the new company has been authorized to provide for the retirement of the said outstanding notes and preferred stock of both controlled companies.

The preferred stock is being offered at 97½ per share. It is redeemable in whole or in part at the option of the company at $105 a share and accrued dividends.

The preliminary statement of Associated Oil Co. and its proprietary companies for the year ended December 31, 1925, showed net profit of $10,465,249 after interest, Federal taxes, depreciation and depletion, equivalent to $4.67 a share (par $25) earned on $56,000,000 capital stock. This compares with $6,405,329, or $2.85 a share, in 1924. The preliminary consolidated income account for 1925 compares with 1924 as follows:

	1925	1924
Net after expenses	$18,509,718	$14,190,239
Int., ord. taxes, etc.	2,522,089	2,417,645
Fed. tax reserve	768,178	534,002
Depr., depl., res., etc.	4,754,202	4,833,263
Net profit	$10,465,249	$ 6,405,329

Working capital as of December 31, 1925, totaled $24,413,523 and cash on hand $2,602,116.

Vacuum Oil

The report of the Vacuum Oil Co. for the year ended December 31, 1925, shows net profit of $24,230,091, after deducting $1,434,449 for inventory depreciation in addition to the usual plant depreciation and $1,750,000 for Federal tax reserve. This is equivalent to $9.73 a share (par $25) earned on $62,199,950 outstanding capital stock and compares with net profit of $17,403,834 or $7.02 a share on $61,919,950 stock in 1924.

The balance sheet of the Vacuum Oil Co. as of December 31, 1925, compares with 1924 as follows:

Assets

	1925	1924
*Plant, etc.	$21,344,839	$21,098,227
Stock in for. cos.	20,048,973	18,797,070
Other investments	67,896	44,408
Merch., materials	32,688,322	30,811,016
Accts. receivable	27,119,925	21,623,705
Cash and securities	41,960,999	39,180,840
Def. charges	1,261,462	1,615,717
Total	$144,492,416	$133,170,977

Liabilities

	1925	1924
†Capital stock	$62,199,950	$61,919,950
Bonds	14,900,000	16,100,000
Accts. payable, etc.	5,420,135	6,415,404
Insurance reserve	2,500,000	2,500,000
Fed. tax reserve	3,557,519	2,126,288
Surplus	55,914,812	44,109,335
Total	$144,492,416	$133,170,977

*After depreciation. †Par $25.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE PRICES

Stocks—	Par	Clos. Quot. Mar.29	Clos. Quot. Mar.22	1926 High	1926 Low	1925 High	1925 Low	1924 High	1924 Low
American Republics	..	68	*65	74	63	79¾	48	48	25
Associated Oil	25	52	59	59½	44⅝	47¼	32	34⅝	27⅝
Atlantic Ref., com.	100	99¾	100	110	97	117½	95½	140½	78½
Barnsdall "A"	25	26	29	33½	26	33½	18⅜	29½	14
California Pet., com.	25	34	35½	38⅛	30⅝	34⅝	23⅞	29	19⅞
General Petroleum	25	57¼	60	65⅝	51¼	59	43	45	38⅝
Houston Oil	100	54	62½	72	53	85	59	82½	61
Independent Oil & Gas	..	21⅛	25⅝	34	20¼	41⅝	13½	16¼	5⅝
Indian Refining	10	10	11	13⅜	9⅛	14¼	5⅛	7	3⅝
Louisiana Oil	10	14⅛	14⅞	19⅝	12	23⅝	13¾	..	..
Maracaibo	..	22⅛	25½	28⅞	20⅜	35½	20⅝	37¼	25⅜
Marland	..	52	55½	60¼	51⅝	60¼	32⅝	42	29
Mexican Seaboard	..	7⅜	8½	12⅛	6	22½	9	25⅜	14⅛
Mid-Continent Pet.	..	29	31⅜	41	28⅝	38	25⅜	40¼	22⅝
National Supply	50	61⅛	62⅜	65⅞	55½	71	54⅜	72½	54
Oil Well Supply	25	31½	33¼	36	31	38	33⅜	..	..
Pacific Oil	..	53⅜	55⅞	83⅛	53⅜	78½	51½	58¼	45
Pan. Amer. P. & T., com.	50	63⅛	67⅜	76½	60¼	83⅞	59½	65	44½
Pan. Amer., Western B	..	35⅛	39⅝	46	34	49⅜	37¼	..	..
Phillips Pet.	..	42⅛	45	45⅛	42½	17⅛	36¼	42½	28½
Producers & Refiners	50	11⅝	14½	17½	11	32⅝	12½	43½	29⅜
Pure Oil, com.	..	26	27½	31	26	33⅜	25⅛	30¼	20
Royal Dutch, N. Y., sh.	13.40	51	52½	57⅜	50	57⅜	48¼	59½	40⅜
Shell Transport	10	42⅝	43⅜	48⅞	42	49	39⅜	42	33
Shell Union, com.	..	25	25⅜	28⅛	24	28⅝	21⅝	22½	15⅜
Simms Pet.	10	21½	23¼	28⅝	20⅜	28½	17⅜	24	10⅜
Sinclair Consolidated, com.	..	21¼	23	24⅞	20⅜	24⅞	17	17½	15
Skelly Oil	25	27⅝	30	32½	27	32½	21¾	29	17⅛
Standard of California	25	54	56½	62¼	54	67¼	51½	68½	55½
Standard of New Jersey, com	25	41⅜	44	46⅜	40¼	47½	38⅜	41½	33
Sun Oil Co.	..	32	*34½	41⅝	31½	43⅜	38⅛	..	..
The Texas Company	25	49	50⅝	54⅞	49	55	42⅜	45⅝	37⅜
Texas Pacific Coal & Oil	10	13½	15	19½	12½	23⅜	11	15¼	8¼
Tide Water Oil (new)	..	32½	35	39¼	32½	152	122	151	116¼
Transcontinental	..	3½	3⅝	4⅜	3	5⅞	3½	6¼	3⅜
Union Oil of California	25	46	47½	49⅜	37⅛	43⅜	33⅛	39	35½
Union Tank, com.	100	88	*90	94	85	†134	118	132⅞	94
White Eagle Oil & Refining	..	26½	27⅜	29⅜	26¼	31⅜	25⅝	29⅜	23⅛
Standard Oils									
Anglo-American Oil	£1	18¼	*18¼	19⅜	17⅝	26⅜	17½	18⅜	14⅝
Borne Scrymser	100	*235	*240	248	226	240	205	264	150
Buckeye Pipe Line	50	54½	56⅝	59½	54½	72	53½	85½	51
Chesebrough Mfg. Co.	25	66½	*66	72⅜	63	74	48¼	52½	29¼
Continental	10	21	21⅜	25⅞	20¼	31½	21⅜	..	..
Crescent Pipe Line	25	14½	*14½	16	14½	17½	10	20	11⅜
Cumberland Pipe Line	100	126	124	137	126	156	128	148	108
Eureka Pipe Line	100	56	*58	63⅜	56	96	61¼	105	74
Galena Signal, com.	100	24	*25½	32½	24	68½	23½	69⅜	52½
Humble Oil & Refining Co.	25	56½	†62	99⅝	56	99	42½	43⅜	36
Illinois Pipe Line	100	138	*140	144	134½	154½	124	161	123
Imperial Oil (Ltd.)	..	33½	34⅜	38⅜	32½	39¼	27¼	119	99
Indiana Pipe Line	50	65½	*67	67	58	84	57¼	100	66
International Pet. Co.	10	30½	31⅜	35½	28⅝	35⅜	22⅛	24⅜	16⅞
National Transit Co.	12.50	*17⅝	17⅜	20⅜	18	25½	16½	25⅞	20⅝
New York Transit	100	*47	*49	50	39	79	50	97	54½
Northern Pipe Line	100	*75	*74	80½	70⅝	88	67½	107½	72
Ohio Oil Co.	25	*60⅜	63½	67⅝	59⅜	75¼	60	79½	53
Penn.-Mex. Fuel	25	*14	*17	22	16¼	44	19	35⅝	27
Prairie Oil & Gas	25	52⅜	55	60¼	52¼	65½	45⅞	269	193
Prairie Pipe Line	100	124	*125½	127	122½	129⅝	105	111	100
Solar Refining Co.	100	196	194	212	191	269	200	240	170
South Penn Oil	25	*40	*40	50	40	†197	139	176	117
Southwest Pa. Pipe Line	100	*54	*54	54½	47½	84	50	89	68
Southern Pipe Line	100	*69	*71½	74½	61½	103	63	100	80½
Standard of Indiana	10	62⅜	64⅜	70⅛	61⅝	70⅝	59½	69⅜	54¼
Standard of Kansas	25	28⅜	29⅜	36⅛	28⅜	46	30½	50½	32½
Standard of Kentucky	25	118	121½	134⅜	118	137	114⅜	121⅞	101
Standard of Nebraska	100	252	240	263	206	270	231	262	198
Standard of New York	25	32	31½	47½	31⅝	48⅝	40	48	37⅜
Standard of Ohio, com.	100	*319	*320	362	310	369	338	337½	277
Swan & Finch, com.	25	*18	19	21	18	27	12	28	20
Vacuum Oil	25	97⅛	100⅜	109⅜	94⅛	109½	80½	83½	50½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	84½	85⅞	93⅜	84½	98¼	63½	67⅞	56

*Bid, no sales. ‡Old stocks. †Exrights.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Mar. 29	56.18	Feb. 20	58.23	Jan. 18	57.38
Mar. 22	57.96	Feb. 15	57.51	Jan. 11	57.55
Mar. 15	56.34	Feb. 8	58.96	Jan. 4	59.15
Mar. 8	55.02	Feb. 1	58.51	Dec. 28	59.40
Mar. 1	55.84	Jan. 25	57.96	Dec. 21	56.86

EDITORIAL IN JOURNAL FILED BY OIL BOARD

WASHINGTON, D. C., Mar. 27.—The Federal Oil Conservation Board announces that a copy of the editorial in the February 11 issue of The Oil and Gas Journal, "The Oil Board and Congress," in which practices relating to the leasing by the Government of Osage Indian lands were subjected to analysis, has been filed with the Federal Oil Conservation Board.

The editorial has been made a part of the board's records.

WEWOKA FIELD EXTENDED

Amerada Petroleum Corp. has extended the deep-sand area of the Wewoka Field in Oklahoma a quarter mile to the south by the completion of No. 5, C SW NE NW, Section 5-7-8, which found the Wilcox sand at 4,138 feet, had the first oil at 4,149 feet, and was drilled to a total depth of 4,155 feet and is flowing at the rate of 235 bbls. an hour.

The Amerada Petroleum Co.'s No. 1 has been drilled 6 inches deeper making a total depth of 4,139½ feet, and the flow has increase to 345 bbls. an hour. On account of limited tankage facilities it is impossible to separate the flow and both wells are making 575 bbls. hourly.

LION REPORTED SOLD

NEW YORK, March 30.—Parties concerned here refuse to deny or affirm the reported sale of the Lion Oil Refining Co. to the Cities Service Co. E. C. Winters, president of the Lion company is here and also officials of subsidiary companies of the Cities Service Co. engaged in the oil business. It is reported that the sale if consummated will be on a basis of $30 a share for the Lion stock.

The Lion company owns a 10,000-bbl. refinery at El Dorado, Ark., with several thousand barrel daily production in the Smackover Field.

STANDARDIZATION MEETING

The semi-annual standardization conference of the Division of Standardization of the American Petroleum Institute will be held in the Broadmoor Hotel, Colorado Springs, Colo., June 15, 16 and 17. Meetings will be held of all committees of the Institute on the standardization of equipment, including belting, oil field boilers, cable drilling tool joints, standard rigs and derricks, oil country tubular goods, rig irons, rotary drilling equipment, wire rope and manila cordage, pumping equipment and engines, and steel storage and production tanks.

IF 1913 PRICES = 100

Relative fluctuations, from 1913 to 1926 in prices of basic elements which make up Industrial and Commercial property values, are shown on our Chart No. 935-U.

The chart also compares price trends of these elements with various published all-commodity price indexes.

Our Booklet, No. 930-U, "Appraisal—An Essential to Good Management," concisely outlines the many uses of appraisals in problems of modern business administration influenced by price changes.

A request for the Chart, the Booklet, or both, if made on your business letterhead to our district office below, will bring them to you without charge.

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N. LOUISIANA-ARKANSAS

(Continued from Page 44)

Section 2-14-21 and the 6⅝-inch casing is being lowered to 1,135 feet at No. 3 Graves.

Keystone Oil Co. cemented 6-inch at 1,206 feet at No. 9 Water, Section 11-14-21. The Magnolia Co's. deep wildcat test No. 1 B. F. Johnson, Section 3-15-21, is drilling in hard sandy lime at 4,585 feet. Smitherman and McDonald's No. 3 C. W. Waters, Section 2-14-21, has 800 feet of oil in the hole from sand at 1,155-63 feet and is waiting for a standard rig. Their No. 4 Waters is being rigged. Straughn & Greason's No. 1 Tidwell, Section 22-13-21, is drilling in gumbo at 1,200 feet.

Arkansas Wildcats

Magnolia's No. 1 Calion Lumber Co., Section 29-15-14, cored salt water sand at 4,111-13 feet. In Drew County, McClintock and Goodka's No. 1 Olga, Section 35-13-5, encountered fresh water with a show of oil at 1,855 feet and the test is shut down for orders. Burton and associates' Hempstead County test No. 1 Garland, Section 23-10-25, is making slow progress going through a rock formation and is drilling at 1,940 feet.

Arkansas Fuel Oil Co's. No. 1 Red River Lumber Co., Section 18-19-24, Lafayette County, was completed at 2,790 feet. It is being produced with air and making 4,000 bbls. of salt water, two per cent of which is oil. Same company's No. 3, Section 7-19-24, is a derrick pattern. Humble Co's. No. 3 fee, Section 19-16-23, is being rigged up.

In Miller County, J. L. Bragden has temporarily abandoned his No. 1 Wiseman, Section 36-15-27, at 2,710 feet and left nine joints of the drilling stem in the hole. Lenze and associates junked the hole at 1,180 feet at their No. 1 Dale, Section 25-15-26, and have skidded the derrick 20 feet north. The new hole was started last week and is down 900 feet.

Bossier Parish

Bossier Parish's single completion was in the Bellevue Field when Humble Oil & Refining Co's. No. 29 Bliss and Wetherbee, Section 23-19-11, went into salt water at 450 feet and was abandoned. Hanby, trustees' No. 2 Larkin, Section 14-19-11, cemented the 6-inch at 378 feet and is shut down waiting for a standard rig. George W. Wetherbee has a rig up for No. 1 Smith 1,170 east and 150 north SW cor. NW, Section 23-19-11.

Arkansas Fuel Oil Co's. No. 1 Murray, Section 14-23-14, is drilling at 2,468 feet. Palmer Corp.'s No. 10 Caplis, Section 25-16-12, is drilling at 129 feet. Woodley & Collins' No. 1 Kilburn, Section 18-19-13, is coring in red shale with streaks of sand at 2,525 feet.

Caddo Parish

Six small wells were completed in Caddo Parish last week and one gas well. The best of the group was the Gulf Co's. No. 228 Ferry Lake, Section 22-20-16, which is flowing 50 bbls. daily through 2-inch tubing from 2,265 feet. Dixie Co's. No. 5 Donovan, Section 21-22-15, is pumping 20 bbls. from sand at 1,040 feet. Magnolia Co's. No. 24 Raines, Section 22-21-15, is pumping 8 bbls. from sand at 1,597 feet. O'Dell and Lawton's No. 5 Red Bayou, Section 15-21-15, was finished for a 15 bbl. pumper at 1,712 feet. The Texas Company completed three in that area. No. 59 Levee Board, Section 33-21-16, is pumping 15 bbls. daily at 1,820 feet; No. 23 C. M. L. Co., Section 23-21-15, is pumping 30 bbls. at 1,670 feet and No. 1 Caddo School Board, Section 16-15-12, was completed for a 3,500,000-foot gas well at 836 feet.

Arkansas Natural Gas Co's. No. 1 C. W. Lane, Section 13-21-15, is drilling in sand at 2,150 feet. H. J. Bussa's No. 1 Hardeman, Section 24-22-15, is drilling at 1,030 feet. Dixie Co's. deep test, No. 1 Jolly, Section 27-22-15, is making slow progress through a lime formation and is drilling at 3,901 feet. The 10-inch casing is being lowered to 2,472 feet at the Dixie's No. 71 Robertshaw, Section 14-21-15.

Eight-inch casing was cemented at 1,520 feet at Dixie's No. 73 Robertshaw, Section 11-21-15. Double I. I. O. Co's. No. 5 Wadkins, Section 27-21-15, is bailing to test chalk rock at 1,630 feet Gulf Co's No. 1 J. M. Byrd is a rig as is No. 4-U L. B. Caddo, Section 16-20-16. Gulf has a derrick erected for No. 5-U L. B. Caddo, Section 9-20-16. The liner was set at 2,311 feet at the Gulf Co's No. 227 Ferry Lake, Section 16-20-16, and the hole has 100 feet of water and 10 feet of oil. It is being bailed. Gulf Co's. No. 229 Ferry Lake, Section 15-20-16, is drilling in blue sandy shale at 1,870 feet. Its No. 7 Herndon, Section 15-21-15, is waiting for a standard rig at 1,746 feet. Gulf Co's. No. 1-E Muslow, Section 35-21-15, is drilling in hard sand rock at 2,294 feet and the 8-inch was set at 2,406 feet at No. 12 Tyson, Section 14-21-15.

Mrs. N. M. Hancock's No. 2 Hampton, Section 15-21-15, is drilling at 1,410 feet. Lewis Oil Corp's. No. 6 Vespy, Section 15-21-15, is being bailed to test chalk rock at 1,585 feet. Magnolia Co. whipped a fishing job at 2,222 feet at No. 15 Doan Thigpen, Section 5-20-15, only to be forced into another delay by high water. Magnolia's No. 2 Levee Board, Section 8-20-15, is still shut down at 4,023 feet while waiting for a collar buster.

Magnolia Co's. No. 23 Raines, Section 22-21-15, is drilling at 143 feet and its No. 1 Spell, Section 29-21-15, is shut down at 2,863 feet because of high water. Eight-inch casing is to be set at 2,451 feet at Magnolia Co's. No. 1 Wiley Bradford, Section 24-21-15. Manie Drilling Co's. No. 1 Cunningham, Section 15-17-14, is drilling at 1,720 feet. O'Dell & Lawton's No. 6 Red Bayou, Section 15-21-15, is drilling at 400 feet.

The Ohio's deep sand test, No. 1 J. S. Ardis, Section 1-21-15, is being drilled slowly and is going through hard lime at 4,018 feet. The test made only 18 feet of hole during the past week. Ohio's No. 18 E. K. Smith, Section 12-21-15, is coring lime at 3,823 feet. In Section 10-21-16 B. L. Spell, trustee, has started drilling at No. 1 Thigpen & Herold, 910 feet was and 150 north of the center of the section. Sandard Co's. No. 11 J. J. Hart, Section 34-21-16, was drilled to 2,379 feet without finding a showing and is being plugged back to 2,150 feet.

The Texas Company, another active operator in the Caddo district both in deep and shallow sand operations, has 10 tests active. Its No. 1-B Bayou, Section 15-20-16, is boring through blue shale at 4,074 feet. No. 42 C. M. L. Co., Section 23-21-15, is grinding through hard lime at 2,444 feet and a derrick has been erected for No. 47 C. M. L. Co. A location was staked for The Texas Company's No. 1 Ellerbe, Section 21-15-12.

No. 60 Levee Board, Section 33-21-16, is drilling in sand rock at 1,826 feet and a derrick is being built for No. 61 Levee Board, 2,575 feet south and 1,290 feet west of the NE cor. A rig is being moved in for No. 12-B Noel, Section 14-21-15, and the 6-inch plug is being drilled out at 2,250 feet at No. 11 Russell, Section 3-20-16. Six-inch casing was cemented at 1,845 feet at The Texas Company's No. 57 Harrell, Section 4-21-16, and the 6-inch was cemented at 1,051 feet at No. 52 Harrell, Section 12-21-16.

Woodley Petroleum Co. cemented the 6-inch at 1,845 feet at No. 1 Knight, Section 35-16-12.

DeSoto Parish

Dixie's No. 1 Jenkins, Section 9-12-11, is drilling in lime at 3,400 feet. Carl K. Dresser's No. 1 Williamson, Section 29-15-14 is being rigged up. Four and one-half-inch casing was cemented at 2,714 feet at the Magnolia's No. 1 Bond, Section 27-21-11, and the test is drilling ahead at 2,720 feet.

Ohio Oil Co. has a rig up for No. 1 Evelyn Cody, NE SW NW, Section 34-12-16. The 6-inch casing was cemented at 2,396 feet at The Texas Company's No. 10-A Wimple, Section 2-12-12. J. C. Walton's No. 1 Harp, Section 36-12-11, is coring gummy shale at 2,750 feet.

Claiborne Parish

Standard Oil Co's. No. 4 Shaw, Section 30-21-7, was put on the pump and made 5½ bbls. of oil, 2 per cent B. S. from sand at 2,068 feet. Triangle Drilling Co's. No. 1 Cupp, Section 22-23-5, is shut down at 1,500 feet because of high water Triangle's deep test, No. 1 Keen, Section 7-19-5, is coring formations at 3,963 feet.

LaSalle Parish

Although finishing the week with less wells than it did last week, Urania celebrated its first anniversary with more barrels of initial production than it did last week. The seven oil wells completed had aggregate production of 1,425 bbls.

The cream of the completions went to G. W. Zeigen and associates' No. 3 Urania, Section 18-10-2e, which is flowing 400 bbls. daily through a 2-inch choke from sand at 1,513-22 feet. The well was completed March 23 and came in almost to the hour that the discovery well came in March 23, 1925.

Atlantic Oil Producing Co's. No. 5 Tullos, Section 23-10-1e, tested salt water at 1,523 feet and has been abandoned. Bailey and associates' No. 1 Renfroe, Section 26-10-1e is flowing 300 bbls. from sand at 1,531-37 feet. Cook Drilling Co's. No. 1 K. S. Russell, Section 25-10-1e, is pumping 200 bbls., 10 per cent salt water, from sand at 1,538 feet. Cook's No. 2 K. S. Russell, same section is swabbing 150 bbls. daily from sand at 1,523-27 feet.

Hamilton & Musick's No. 1 Volk, Section 26-10-1e, was finished in sand at 1,530-38 feet and is flowing at the rate of 200 bbls. a day, 10 per cent salt water. Three joints of 40 mesh screen was set in the hole. Louisiana Oil & Refining Corp's. No. 15-B Tremont, Section 25-10-1e, was completed at 1,511-15, and is flowing 75 bbls. daily. Love and associates' No. 1 Zimmerman, Section 25-10-1e, is pumping 100 bbls. daily from sand at 1,523 feet.

J. S. Abercrombie & Co's. No. 1 King, Section 25-10-1e is drilling at 900 feet. Six-inch was cemented at 1,530 feet at Arizola Petroleum Co's. No. 1 Tannehill, Section 36-10-1e, and the 6-inch was cemented at 1,528 feet at No. 3 Tannehell. Ayers and associates set the 10-inch at 106 feet at No. 3 Urania, Section 13-10-1e. B. & B. Drilling Co.'s No. 1 Urania, Section 7-10-1e, is being rigged up.

O. W. Clark's No. 1 Bass, Section 25-10-1e, is in sand at 1,555-61 feet and tested fresh water with a show of oil. The casing was found to be leaking and arrangements are being made to set the 4½-inch. Six-inch was cemented at 1,534 feet at Clark's No. 2 Russell, Section 26-10-1e. A similar difficulty encountered at No. 1 Bass is causing trouble at Clark's No. 2-A Russell, Section 26-10-1e and 4½-inch casing is being lowered to test sand at 1,557-61 feet. A derrick is standing for Clark's No. 1 Russell, Section 25-10-1e, and a derrick has been erected in the NW SW SE, Section, 23-10-1e, for No. 3 Tullos.

Other Urania Operations

Six-inch casing was cemented at 1,561 feet at Dixie Oil Co's No. 4 Urania, Section 24-10-1e. Explorers Oil Corp's. No. 1 Keith, Section 36-10-1e, is drilling at 400 feet. Ferguson and associates have started drilling at No. 1 Kyle & Davis, Section 25-10-1e. Galloway and associates set the 10-inch at 103 feet at No. 3 Pendarvis, Section 23-10-1e, and J. O. Graves, set 10-inch at 103 feet at No. 1 King, Section 25-10-1e.

Greenwall and associates set 40 mesh screen and are swabbing to test sand at 1,528-35 feet at No. 1 Tyler, Section 26-10-1e. Hamilton and associates are arranging to test sand at 1,529-37 feet at No. 3 Bennett, Section 25-10-1e. Hunt and associates set screen and are swabbing sand at 1,490-96 feet at No. 3 Tullos heirs, Section 26-10-1e. The 8¼-inch casing was cemented at 1,470 feet at No. 4 Tullos heirs, and at 1,492 feet at No. 5.

Six-inch was cemented at 1,512 feet at Hunt, McCurry & Zoder's No. 1 Winberry, Section 18-10-2e. S. S. Hunter has started drilling at No. 2 Louisiana Central Lumber Co., NW NW SE, Section 27-10-2e. Jones & Womack are testing the sand at 1,550-57 feet after setting the 6-inch at 1,528 feet at No. 1 Perrin, Section 26-10-1e. Keisker's No. 1 Russell, Section 25-10-1e, is waiting for a standard rig at 1,542 feet. Kimbrough & Willis' No. 1 fee, Section 26-10-1e, is waiting for a standard rig at 1,555 feet. Louisiana Oil & Refining Corp's. No. 5-A Tremont, NE cor., Section 35-10-1e, is a derrick. The 6-inch was cemented at 1,527 feet at the Louisiana Corp's. No. 29-B Tremont, Section 25-10-1e.

The Louisiana Corp's. No. 30-B is being bailed to test sand at 1,518-23 feet. Long and associates' No. 1 Bass, Section 25-10-1e, is shut down waiting for a standard rig. The hole is full of oil from sand at 1,543-47 feet. McWilliams & Foster's No. 1 J. D. Russell, Section 25-10-1e, is drilling at 1,300 feet. Minnesota Oil Corp's. No. 1 Cotton, Section 25-9-2e, is being rigged up. The plug is being drilled out at 1,532 feet at Mistrot and associates' No. 1 Russell, Section 26-10-1e.

Arrangements are being made to test sand at 1,531-40 feet at Mitchell and associates' No. 1 Herbert, Section 26-10-1e. Sand tested dry at 1,542-57 feet at Natural Gas & Fuel Co's. No. 1 T. Russell, Section 26-10-1e, and the hole was drilled on down into sand at 1,576-78 feet. The operators are waiting for a standard rig. Same company's No. 4 T Russell, Section 26-10-1e, is drilling and No. 1 Frank Tullos, Section 26-10-1e, is being rigged up. Natural Gas & Fuel Co's No. 2 H. Tullos, Section 26-10-1e, is being bailed to test sand at 1,479-85 feet and their No. 4 H. Tullos is waiting for cement to set at 1,506 feet while No. B-1 Urania, Section 18-10-2e, is shut down at 1,046 feet for orders.

Nelson and associates' No. 1 Bryant & Harvey, NE cor. NE SE, Section 26-10-1e, is a rig. Ohio Co's. No. 4 Urania, Section 18-10-2e, is waiting for the cement to set at 1,520 feet. Ohio Co's. No. 6 Urania is drilling at 600 feet. L. E. Ozley and associates' No. 1 fee, NE NE SE Lot 7, Block 9, Section 25-10-1e, is a derrick. Roberts and associates' No. 2 Russell, NE W half NW SE, Section 25-10-1e, is drilling at 1,350 feet and their No. 3 Russell, Section 25-10-1e is a derrick. Rowe and associates have a rig up for No. 1 Urania, NW SW NW, Section 5-10-2e. Sherman and associates' No. 1 Russell, Section 25-10-1e, is coring formations at 1,515 feet.

Standard Drilling Co's. No. 2 Clinton, Section 26-10-1e, is being bailed to test sand at 1,540-54 feet. Standard Co's. No. 3 Urania, Section 19-20-2e, set the 10-inch at 92 feet; No. 5 is drilling at 1,517 feet. Trio Oil Co's. No. 1 Urania, Section 19-10-2e, is drilling at 1,568 feet. George W. Wetherbee's No. 1 Norrid, Section 25-10-1e is being bailed to test sand at 1,532-36 feet. Wetherbee's No. 1 H. Tullos, SE cor. Lot 1 Block 10, Section 26-10-1e, set 10-inch at 102 feet. O. F. Whittaker's No. 2 King, Section 36-10-1e, tested salt water and some oil in sand at 1,530-35 feet and the hole is being plugged back two feet. Williamson Drilling Co's. No. 2 Herbert, Section 26-10-1e, is waiting for a standard rig and is in sand at 1,554-60 feet. Same operator's No. 3 Herbert is drilling at 900 feet and No. 4 Herbert is a derrick.

Mourehouse Parish

Natural Gas Producing Co's. No. 17 Crossett, Section 12-21-4e, was completed for a 2,600,000-foot gas well in sand at 2,255 feet. Boisseau and associates' No. 1 Sullivan, Section 11-21-7e, is drilling in rock at 2,529 feet. Natural Gas Producing Co's. No. 18 Crossett, Section 27-23-5e, is a rig.

Ouachita Parish

The Central Co. has a rig up for No. 1 Cole, Section 35-20-4e. Six-inch casing was cemented at 2,175 feet at J. M. Huber's No. 7 fee, Section 30-19-5e. Sam D Hunter's No. 1 D'Arbone, Section 32-19-3e, is shut down at 2,180 feet because of high water. G. E. Jordan's No. 1 Miller Roberts, Section 12-18-4e, is waiting for the cement to set at 2,166 feet. Jordan's No. 1 Ouachita, NE cor., Section 17-18-4e, is a derrick.

Arrangements are being made to set the 6-inch casing at 2,155 feet at LaDell and associates' No. 33 fee, Section 36-19-4e. Palmer Corp's. No. 2 Kate Cole, Section 26-20-4e, is a rig. Pioneer Oil & Gas Co's. No. 1 Filihol, Section 11-18-4e, is drilling at 2,100 feet. United Car-

bon Co's. No. 1 Wilson, Section 24-20-4e, is a rig.

Sabine Parish

Toro Petroleum Co's. No. 1 Pickering Lumber Co., Section 24-4-12 tested salt water at 1,548 feet and the test has been abandoned. L. M. Emlet's No. 5 Bowman, Section 9-7-12, is coring gas sand at 3,267 feet. Emlet is rigging up for No. 7 Bowman, Section 14-7-14.

Webster Parish

Three wells were finished in the Cotton Valley area during the past week with a combined production of 195 bbls. Ohio Co's. No. 36 Bodcau, Section 21-21-10, is pumping 100 bbbls., 25 per cent salt water, from sand at 2,579 feet. Ohio Co's. No. 22 Gray, Section 26-21-10, is making 60 bbls., 20 per cent salt water, on the pump from sand at 2,571 feet. The Gulf Co's. No. 1 Doyle, Section 21-21-10, made 35 bbls. the first 12 hours after it had been put on the pump. Five per cent of the production was salt water and mud from sand at 2,547 feet.

Two locations in that area were abandoned. Ohio's No. 4 Sandlin, Section 27-21-10 and Louisiana Oil Refining Corp's. No. 4 Bodcau, Section 13-21-10. Alabama Petroleum Co's. No. 1-B Robbins, Section 21-21-10 is waiting for a standard rig and has 1,250 feet of fluid, 20 per cent salt water, in the hole from sand at 2,566-72 feet. No. 3-B Robbins, is being rigged up. Arkansas Natural Gas Co's. No. 1 Miller, Section 30-23-9, is drilling at 2,500 feet.

Doern and associates' No. 1 Bollinger, Section 9-22-11, is shut down at 660 feet. Magnolia Co's. deep sand test, No. 1 Bible, Section 8-20-9, went from one streak of hard luck to another last week. A fishing job for a lost bit at 4,281 feet caused several days delay. Then when 2,700 feet of 6-inch was in the hole the casing parted and dropped to the bottom. Six-inch was cemented at 2,525 feet at the Magnolia's No. 1 Tiner, Section 21-21-10.

R. W. Norton's No. 1 Josey & Massey, Section 27-21-10, has been temporarily abandoned at 2,615 feet. The Ohio Oil Co., one of the most active in Webster Parish, is to drill another deep test in that area. A derrick pattern has been built for its No. 3 Holloway in the SW SE NW, Section 23-21-10. Ohio Co's. No. 1 Cox, Section 23-21-10, is drilling in hard lime at 4,750 feet. Ohio's No. 37 Bodcau, Section 21-21-10, is drilling at 700 feet. Ohio Co's. No. 6 S. Sidney, Section 16-21-10, has 700 feet of oil in the hole from sand at 2,531-36 feet, and is waiting for a standard rig. Smitherman and McDonald's No. 1 Oakley, Section 29-33-11, is drilling in shale at 1,430 feet.

Scattered Wildcats

In Grant Parish, Dowling & McCurry's No. 1 Swope, Section 18-19-1e, is drilling at 100 feet. Buckley & Palmer's No. 1 Davis, Section 12-20-3w, is drilling in gummy shale at 1,620 feet. The Texas Company is arranging to set 10-inch casing at 880 feet at No. 1 Tremont, Section 27-18-1w, Lincoln Parish. In Union Parish, Arkansas Fuel Oil Co's. No. 1 Reeves, Section 14-20-1e, is drilling in sandy shale at 2,490 feet. Louisiana Power Co's. No. 1 Thompson, Section 16-20-3e, is drilling at 1,300 feet. In Winn Parish, the Standard Oil Co's. No. 1 Albritton, Section 27-10-1e, is drilling in sandy shale at 1,646 feet and the location has been abandoned for No. 2. J. H. Hall set the 6-inch with a packer to test at 1,050 at No. 1 Eagles, Section 6-10-2w, and a derrick is being built for C. H. Wilson's No. 1, SE NE SE, Section 24-13-1e.

ROCKY MOUNTAINS

(Continued from Page 48)

is also drilling a validation hole near its rig, but this hole is only to be drilled a short distance and is not intended to reach any sands.

Should production be found here the district will be a new field, entirely separate from the Sunburst Field proper. It lies about 12 miles southwest of the Sunburst Field and so far has never been drilled.

The Great Northern Railway will place three more gas-electric trains in operation on its Montana lines this spring. These new type of trains are to replace the regular steam locomotive and cars. Two of these new trains will be put on the branch road between Havre and Bainville, another between Columbia Fal's and Kalispell and one between Cut Bank and Havre. The new trains consist of an engine car containing the motive power plant, baggage, mail and express compartments, and a trailer for passengers with seats for 64 people. The gasoline engines are 175 horsepower and drive an electric generator that furnishes the power for the train.

Colorado Operations

The Union Oil Co. of California, operating in the Fort Collins Field in Colorado, has made an estimate of the area that the two structures will probably cover from the geological surveys and checked with the well records of the wells drilled to date.

This estimate gives the field a total area of only 2,500 acres of productive territory, or about four sections or square miles. This includes the Fort Collins structure and the Wellington Dome to the north of the Fort Collins. The Wellington Dome is considered to cover 2,000 acres and the Fort Collins Dome only 500 acres.

The well of the Wellington Oil Co. on the Hanna lease, Section 24-9-69, came in dry on the west central part of the Douglas Lake structure at 2,400 feet and has been abandoned. This well probably never reached the sand, but its location was such that it was conceded a duster.

The Whittaker Blunck well of the Union of California, on Section 30-8-68, Fort Collins Dome, is making about 350 bbls. and the Union's well on the Evans lease, Section 24-8-69, is considered another dry hole as the Muddy sand was found about 500 feet below where it was expected and contained water. This well is at 4,955 feet.

The next well expected in at Fort Collins is the Union Oil Co.'s No. 3 Buckeye on Section 31-10-68, near the central part of the Wellington structure. The control head has been placed and the hole is at 4,500 feet.

Near Colorado Springs, the Ohio Oil Co. surveyed a structure last year and started a wildcat well on Section 17-16-65. The structure was called the Pike's Peak Dome and looked good for a small pool. The Ohio's well has passed through all formations to a depth of 3,010 feet and is dry.

In Kiowa County, Colorado, the Mineral Exploration Co. is drilling with a diamond drill to make a test of the sands on the Sierra Grande Arch. This large structure extends from New Mexico into Colorado and has several well-defined structures on it.

Utah Well Cleaned

On the Cane Creek structure in Utah, south of Moab, the Midwest Refining and the Utah Southern Oil Co. have cleaned the hole and set 8-inch casing to bottom at 2,000 feet. The pipe is cemented and the well is waiting for cement to set before drilling in. The second well being drilled by the Midwest Refining Co. on the Shafer Dome, is at 180 feet and will soon hitch on the beam.

North of Cane Creek, Section 35-21-16, the Marland Oil Co. drilling a wildcat well found the Dakota sand with a showing of oil and flood of water. This well is on what is termed the Green River Dome and the sand was found at 2,390 feet.

LaBarge Field

In the LaBarge Field in southwest Wyoming, the old Corder wildcat located about 12 miles west of the LaBarge Fiell has been cleaned out and is drilling again. The hole is at 1,400 feet and cased to bottom. Several small showings of oil and gas were found in this well and the company hopes to find a field similar to LaBarge.

The Hidden Dome well of the Ohio Oil Co. reached the Dakota sand at 2,525 feet, on Section 31-48-90 and found water in the sand, this is now being cased off and then the well will drill to the Lakota sand below. This is the first well ever drilled below the Frontier formation in the Hidden Dome territory.

The Ohio Oil Co. is also preparing to start work this summer in the Oregon Basin Field in Park County. The company drilled a test there last year that found a gas flow and then went to water. It is considered that the territory is worth another test at least.

Salt Creek Completions

The Midwest Refining Co. drilled in six new completions in the Salt Creek Field the past week. The deep well that found water on Section 25-40-79, drilled by the Wyoming Oil Fields, was deepened to 4,400 feet and the water flow increased from 19,000 bbls. to 29,000 bbls. This water flow will be used in the field to supply water for the operations.

The Midwest Oil Co. brought in a first sand producer on Section 2-39-79 at 1,595 feet and shot. It will make a small producer. The Wyoming Associated Oil Co. also has a new first sand producer on Section 26-40-79 at 1,137 feet and after shooting the well is estimated at 15 bbls.

The Wyoming Associated Oil Co. also completed a big Lakota sand well on Section 35-40-79 at 2,374 feet that started off at 2,167 bbls., another Lakota well of the same firm on Section 34-40-79, found the Lakota sand at 2,374 feet and started off at 1,806 bbls.

The Wyoming Oil Field Co. drilled in a Lakota producer on Section 24-40-79 that made 826 bbls. at a depth of 2,435 feet.

Runs for Week Ending March 20

Salt Creek	51,890
Teapot	1,260
Big Muddy	3,460
Grass Creek	2,700
Elk Basin	640
Greybull	5
Rock River	2,100
Lance Creek	2,190
LaBarge	200
Poison Spider	300
Osage	350
Hamilton Dome	1,290
Lander	270
Byron	30
Lost Soldier	4,260
Simpson Ridge	230
Ferris	40
Cat Creek	2,960
Sunburst	19,500
Lake Basin	225
Florence	400
Moffat	3,615
Tow Creek	100
Fort Collins	2,435
Iles Dome	130
Boulder	25
Rangeley	100
Hogback	490
Rattlesnake	490
Artesia	3,010
Total	105,705

GEOLOGISTS HOLD RECORD CONVENTION

(Continued from Page 23)

souri, Nebraska, Wisconsin and others helped drown out the orchestra.

About 11 o'clock the big hall on the Mezzanine floor of the Baker was cleared so that the geologists could begin shaking the light fantastic toe. The dance was still going strong at 2:30 in the morning, at which time the floor was showing enough open spaces to permit a little freedom of movement, so it may be safely deduced that this part of the convention entertainment was enjoyed.

Big Golf Tournament

No convention is complete nowadays without a golf tournament, so on Friday afternoon nearly 100 geologists motored out to the Brook Hollow Country Club to complain of their luck. It is estimated from a careful survey that not more than 101 of these participants were off their game that day, and for their sake the scores will not be divulged. I. R. Sheldon, chief geologist of the Texhoma Oil & Refining Co., of Wichita Falls, Tex., won the medalist honors with an 85 and thereby captured the President's Cup offered by E. DeGolyer.

E. T. Merry, of Cisco, turned in an 86, which, with his handicap of 14, gave him a net of 72 and won for him first place in the initial flight. L. A. Barton was runner-up with a handicap score of 75.

In the second flight, James H. Gardner came out ahead with a gross of 97 and a net of 78. He was hard pressed by F. E. Kendrick whose net score was 79.

A handicap score of 78 gave W. W. Ayer first place in the third flight, and D. J. Edson trailed him with a net of 80, his handicap being 20.

The lowest gross card of the day was turned in by Nathan Adams, who won first place in the business men's handicap with an 83, which, with his handicap of 11, gave him a 72. This score won Mr. Adams the first cup of the Bostick trophy and his name will be inscribed on it.

While the men were digging themselves out of sand traps and otherwise amusing themselves on the Brook Hollow course, the ladies were being entertained in the clubhouse with a bridge tea. Special mention, in fact, should be made of the excellent entertainment which was provided the wives of the geologists throughout their stay in Dallas. Several luncheons and a special theater party contributed to the pleasure of their visit.

SOUTH HUTCHINSON HAS GOOD WELLS

(Continued from Page 31)

1 Cockrell is making 2,000,000 feet of gas at 2,970 feet. It is being drilled deeper. Lenix and others' No. 1 Smith is drilling out the plug at 2,857 feet.

In Carson County The Texas Company's No. 4 Mary Couts Burnett has been shot with 30 quarts of nitro and is now swabbing at the rate of 75 bbls. daily. The shot was placed at 2,867-77 feet.

Hutchinson County Drilling

Badger Oil Co.'s No. 1 Lewis, drilling at 2,450 feet; Canadian River Oil Co.'s No. 2 Kingsland, 375 feet; Canyon Oil Co.'s No. 1 J. A. Whittenburg, fishing at 2,330 feet; No. 2, drilling at 1,000 feet; Cockrell-McIlroy Oil Co.'s No. 1 Smith, 1,400 feet; No. 2 Smith, spudding; Currie Brothers' No. 1 Smith, drilling at 2,880 feet; Dixon Creek Oil Co.'s No. 4 Smith, 2,000 feet; Douglas Oil Co.'s No. 1 J. A. Whittenburg, spudding; Fly-Blackburn Oil Co.'s No. 1 Weatherly, drilling at 930 feet; Gates Oil Co.'s No. 1 Kingsland, 2,250 feet; No. 2 Kingsland, 2,200 feet; Gibson Oil Corp.'s No. 1 Johnson, 420 feet; No. 1 Kingsland, 1,650 feet; Golding-Phillips Oil Co.'s No. 1 Hodges, 2,040 feet; Heywood and others' No. 1 Cockrell, 2,050 feet; Holmes and others' No. 1 Smith, 2,665 feet; Lenix and others' No. 1 Johnson, 300 feet; Lucky Ten Oil Co.'s No. 1 Smith, 650 feet; McIlroy Brothers' No. 3 Smith, 2,050 feet; McIlroy and Herring's No. 2 Smith, 1,100 feet; McMan Oil Co.'s No. 1 Johnson, 700 feet; No. 1 Smith, spudding; Middleton and others' No. 1 Smith, spudding; Midwest Exploration Co.'s No. 1 Smith, spudding; No. 2 Smith, spudding; Morton and others' No. 1 Johnson, drilling at 475 feet; New Domain Oil Co.'s No. 1 Kingsland, 460 feet; Phillips and others' No. 1 Smith, 440 feet; Phillips Petroleum Co. and Canyon Oil Co.'s No. 1 J. A. Whittenburg, 2,748 feet; Phillips Petroleum and South Hutchinson Oil Co.'s No. 3 J. A. Whittenburg, 2,280 feet; Phillips Petroleum and Gibson Oil Corp.'s No. 1 J. A. Whittenburg, spudding; No. 2, showing oil at 2,855 feet; Phillips Petroleum and Pulaski Oil Co.'s No. 1 Cockrell, caving at 2,330 feet; No. 2 J. A. Whittenburg, drilling at 435 feet; Phillips Petroleum Co.'s No. 1 Johnson, 2,917 feet; No. 3 Smith, setting casing at 2,763 feet; No. 4 Smith, 1,900 feet; No. 3 J. A. Whittenburg, 2,735 feet; Phillips Petroleum and Pulaski Oil Co.'s No. 1 Johnson, 2,150 feet; Prairie Oil & Gas Co.'s No. 2 Weatherly, 2,400 feet; Relief Oil Co.'s No. 1 Smith, setting casing at 485 feet; Roxana Petroleum Corp.'s No. 1-B Smith, drilling at 595 feet; No. 2-B Smith, spudding; No. 2 Smith, drilling at 1,695 feet; No. 3 Smith, 440 feet; Skelly Oil Co.'s No. 1 Johnson, 740 feet; No. 1-A Johnson, spudding; No. 2 J. A. Whittenburg, drilling at 2,557 feet; No. 3, 880 feet; No. 4, showing gas at 2,760 feet; Smith and others' No. 1 J. A. Whittenburg, drilling at 2,596 feet; Spring Creek Oil Co.'s No. 1 Smith, 2,136

feet; The Texas Company's No. 1 Cooper 2,350 feet; Triangle Oil Co.'s No. 1 Smith, fighting cave at 1,850 feet; Twin Six Oil Co.'s No. 3 Kingsland, fishing at 380 feet; No. 4, fishing at 2,760 feet; Ward and others' No. 1 Cockrell, drilling at 2,250 feet; White Eagle Oil & Refining Co.'s No. 1 Johnson, setting casing at 1,929 feet; No. 2 Smith, setting casing at 285 feet; No. 3, drilling at 385 feet; Whittenburg-Coble Oil Co.'s No. 1 J. A. Whittenburg, setting casing at 112 feet; Winner Oil Co.'s No. 1 Pritchard, spudding.

Carson County

Amarillo Oil Co.'s No. 3-B Bivins, setting casing at 2,911 feet; American Refining Co.'s No. 6 Burnett, drilling at 2,092 feet; Cosden and others' No. 1 Burnett, setting casing at 2,820 feet; Magnolia Petroleum Co.'s No. 2 Burnett, drilling at 2,020 feet; Marland Oil Co.'s No. 1-A Burnett, 3,000 feet; No. 1-B Burnett, 2,400 feet.

Gray County

Clark and others' No. 1 Merten, drilling at 1,500 feet; The Texas Company's No. 1 Brown, 2,220 feet; No. 2 Saunders, cementing at 1,838 feet; Wilcox Oil & Gas Co.'s No. 2 Combs and Worley, drilling at 2,140 feet; No. 3 Worley and Reynolds, 352 feet.

Dallam County

James and others' No. 1 James, running casing at 2,500 feet.

Moore County

Cadman and others' No. 1 Sneed, spudding; Moore County Oil Co.'s No. 1 Sneed, drilling at 350 feet.

Potter County

Amarillo Oil Co.'s No. 4-A Bivins, fishing at 3,005 feet; Prairie Oil & Gas Co.'s No. 1 Lee Bivins, drilling at 3,260 feet.

Wheeler County

Vaughn and others' No. 1 O'Gorman, drilling at 350 feet.

CHEMISTS TO MEET NEXT WEEK IN TULSA

(Continued from Page 21)

Erskine, Hamilton College, Clinton, N. Y. "Color and Gumming Constituents in Shale Gasoline," by Robert A. Baxter, Golden, Colo.

"Properties of Gasoline Hydrocarbons from Tonkawa Crude Oil," by N. A. Stephens, Marland Refining Co., Ponca City, Okla.

"The Hydrogenation of Cracked Gasoline," by C. C. Wagner, Eastern State Normal School, Madison, S. Dak.

"Pure Hydrocarbons from Petroleum," by G. G. Brown and A. R. Carr, University of Michigan, Ann Arbor, Mich.

"Bleaching of Commercial Gasoline by Sunlight and Color Reversal During Dark Storage," by Albert H. Vilbrandt and James R. Withrow, Ohio State University, Columbus, Ohio.

"The Life of Fuller's Earth Used in the Vapor Phase Treatment of Cracked Distillates," by M. R. Mandelbaum and P. S. Nisson, Gray Industrial Laboratories, Newark, N. J.

"Assay of Non-Detonating Properties by Fractional Gravity Distillation," by G. H. Clay, Kansas City Testing Laboratories, Kansas City, Mo.

"The Relation of Fundamental Scientific Research to the Petroleum Industry," by Benjamin T. Brooks, New York, N. Y.

"A Comparison of Some of the Physical and Chemical Properties of Oils and of Their Efficiencies as Lubricants—Preliminary Paper," by M. V. Dover, University of Missouri, Columbia, Mo.

JOINT MEETING
Division of Industrial and Engineering Chemistry
W. A. Peters, chairman
E. M. Billings, Secretary
Division of Petroleum Chemistry
R. R. Matthews, Chairman
G. A. Burrell, Secretary
Tuesday, 2:00 p. m.
Symposium; Lubrication
R. E. Wilson, chairman

1. A. E. Dunstan. "Lubrication Research in England." (Lantern.)
2. H. A. S. Howarth. "Characteristics of Full and Partial Bearings." (Lantern.)
3. D. P. Barnard. "Oil Flow in Plain Bearings." (Lantern.)
4. W. C. Wilharm. "The Role of Oiliness in Industrial Lubrication." (Lantern.)
5. C. E. Gilson. "Some Little Understood Factors Affecting Lubrication (Lantern.)
6. A. E. Becker.* "Effect of Surface Action on Fluid Film Lubrication. (Lantern.)
7. P. L. Scott. "Diesel Engine Lubrication." (Lantern.)
8. R. R. Matthews and Fred Norton. "A Problem in Diesel Engine Lubrication." (Lantern.)

Wednesday, 9:00 a. m.
Symposium: Lubrication (Continued)

9. S. W. Sparrow and J. O. Eisinger. "Lubrication Data from the Cooperative Fuel Research." (Lantern.)
10. R. E. Wilson and R. E. Wilkin, "Principles Underlying the Use of Equilibrium Oils for Automotive Engines." (Lantern.)
11. T. C. Coleman and A. W. Pope, Jr. "A Study of Cylinder Wall Lubrication." (Lantern.)
12. L. W. Parsons and G. R. Taylor. "Relation Between Certain Physical and Chemical Properties of Oil and Their Lubricating Value." (Lantern.)
13. F. L. Koethen. "The Role of Graphite in Lubrication." (Lantern.)
14. Benjamin T. Brooks. "High Vacuum Distillation of Lubricating Oils." (Lantern.)
15. E. R. Barnard. "The Graphical Estimation of Bearing Pressures."
16. M. V. Dover, "A Comparison of Some Physical and Chemical Properties of Oils and of Their Efficiencies as Lubricants."
17. C. J. Livingstone, S. P. Marley, and W. A. Gruse. "Motor Carbon Deposits Formed Under Control Conditions From Typical Automobile Oil."

Papers

18. Charles W. Cuno, "Mass Law in the Manufacture of Nitric Acid." (Lantern.)
19. Walter Reid. "Nitric Acid in Exhaust Gases." (Lantern.)
20. C. W. Foulk. "A New Type of End-point in Electrometric Titration and Its Application to Iodometry." (Lantern.)

*Nonmembers, placed on program by divisional officers.

Late Fields

(Continued from Page 28)

Northern Brown County is showing an unusual amount of activity and new producers are being brought in daily. The E. L. Smith Oil Co.'s No. 1 Dunn, reported last week as good for 1,600 bbls., is not yet listed as a completion. The Humble Oil & Refining Co.'s No. 3 Dunn, in the same area, though not completed, is reported showing 300 bbls. daily from the sand at 1,101-15 feet. This well has still further possibilities, when it is taken into consideration that the Smith company and The Texas Company's big wells on the Dunn are producing from a total depth of 1,127 feet.

The Barbour Oil Co.'s No. 3-A Prather, also in northern Brown County, is making 140 bbls. from the Crosscut sand at 1,310-26 feet. Other good Brown County new wells are Cosden and others' No. 6 Westerman, which is making 100 bbls. at 1,282 feet, uncompleted; Gillespie and others' No. 1 Henson is making 100 bbls. at 1,272-90 feet, and the H. Y. Oil Co.'s No. 2 Newton & West is showing for 50 bbls, uncompleted, at 1,197-1,216 feet.

There are several uncompleted new producers in various sections of Archer County. Among them are the McCarty Oil Co.'s No. 23-B Wilson, making 70 bbls. at 1,578-87 feet; the Texhoma Oil & Refining Co.'s No. 2-A Parrish, 50 bbls. at 1,566-77 feet; the Atlantic Oil Producing Co.'s No. 2 Oldham, 75 bbls. at 1,551-58 feet; the Humble Oil & Refining Co.'s No. 1 Wolf, 75 bbls. at 1,347-65 feet and the Primrose Petroleum Co.'s No. 7 Wolf 50 bbls. at 1,356-70 feet.

Landreth Production Co. has four uncompleted new producers in the Wilbarger County district, all on the W. T. Waggoner lands. No. 7-A made 385 bbls. in 20 hours at 1,851-70 feet; No. 2-G, 150 bbls. at 1,892-1,900 feet; No. 1-HH, 215 bbls. in 20 hours at 2,533-41 feet, and No. 3-NN is showing for 240 bbls. at 1,895-1,906 feet.

In Montague County, Benton & Wood's No. 4 Hinds is making 90 bbls. at 958-970 feet.

Magnolia Petroleum Co. has ordered the cleaning out of the No. 1 University of Church & Fields in northeastern Crane County, reported to have been bought by the Magnolia.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Mar. 30.—Cole Petroleum Co.'s No. 17 Benavides in Duval County, less than a quarter of a mile south of the Cin-Tex discovery oil well in the Cole gas field, after flowing a small amount of oil for a week, suddenly increased its flow to a big volume Friday night and soon filled all storage and was covering the ground when finally closed in. Saturday morning after connections had been made with other storage the well was opened and made only gas.

Cin-Tex's discovery well came in February 10 making a solid stream of oil to the crownblock and was closed in and six weeks later when opened made oil. Cin-Tex's second test made gas. Houston company offset Cin-Tex's No. 1 with a well that came in with a hole full of oil but not flowing. It is being rigged up with standard tools and will be put on the beam and pumped. The Cole well after making a little gas was closed in again.

No one has any plausible theory worked out for the field. Magnolia company completed its pipe line from the field to its tank farm at Oilton, 12 miles west, and Houston Oil Co. has a 6-inch pipe line laid out on the ground for a line to a tank farm it has started at Bruni, 4 miles away on the Texas Mexican. Several additional wells are expected in this week. Humphreys-Moody-Seagraves set casing Sunday on their second test. The first was a gasser. Houston Oil Co. is down 1,500 feet on No. 2 and several hundred feet on No. 3. Several other tests are started.

CALIFORNIA

LOS ANGELES, Calif., Mar. 30.—The Associated Co.'s No. 101 Lloyd, an outpost in the Ventura Avenue Field, is making 1,500 bbls. from 5,377 feet. The oil is 35 gravity. The well extends the field 3,000 feet east, the Associated owning the newly-proved acreage.

GALE WREAKS HAVOC IN COASTAL FIELDS

HOUSTON, Tex., Mar. 30.—A gale blowing 82 miles an hour swept the Gulf Coast area early today resulting in heavy losses to the oil industry. Two men were killed and one injured in the South Liberty Pool. Reports show some 500 wooden derricks demolished in the Humble, Hull, Sour Lake, South Liberty and Pierce Junction Pools. The financial loss from collapsed derricks, broken power lines to electrically equipped pumping wells and consequent cessation of production is estimated at between $1,500,000 and $2,000,000.

NORTH CENTRAL TEXAS

(Continued from Page 31)

Underwood Drilling Co.'s No. 1 Allen and Kemp, 1,304 feet; United Production Co.'s No. 1 Snow, 643 feet.

Wilbarger County

Atlantic Oil Producing Co.'s No. 4 Sigler-Waggoner, 1,685 feet; Bridwell and others' No. 13 Stephens, 1,425 feet; Burton and others' No. 3 Castlebury, 400 feet; Humble Oil & Refining Co.'s No. 4-A Stephens, 1,406 feet; No. 46 Stephens, 925 feet; No. 8-H Waggoner, 1,110 feet; No. 9-H Waggoner, 600 feet; No. 4-K Waggoner, 380 feet; No. 6-M Waggoner, 432 feet; No. 5-O Waggoner, 390 feet; Landreth Production Co.'s No. 6-G Waggoner, 341 feet; No. 3-I Waggoner, 1,750 feet; No. 2-Q Waggoner, 2,280 feet; No. 5-CC Waggoner, 1,795 feet; No. 4-NN Waggoner, 1,750 feet; No. 2-QQ Waggoner, 390 feet; No. 1-AAA Waggoner, 1,600 feet; McCamey and others' No. 34 Stephens, 1,390 feet; Magnolia Petroleum Co.'s No. 71 fee, 1,570 feet; No. 2 Moore-Waggoner, 931 feet; Milham Corp.'s No. 3-B Waggoner, 1,590 feet; No. 2-L Waggoner, 400 feet; Murchison and others' No. 1 Streit, 610 feet; Roxana Petroleum Corp.'s No. 7-A Waggoner, 1,120 feet; No. 8-A Waggoner, 1,000 feet; Sloan and others' No. 2 Waggoner, 1,273 feet; The Texas Company's No. 1 Guggisburg, 450 feet; Waggoner Refining Co.'s No. 1-A Waggoner, 805 feet.

Archer County

Anderson and others' No. 5 Perkins, drilling at 810 feet; Chenault and others' No. 2 Parrish, 1,340 feet; Hart and others' No. 1 Moss, 613 feet; Hill and others' No. 6 Hutcherson, 1,104 feet; Magnolia Petroleum Co.'s No. 6 Rutty, 930 feet; McCarty Oil Co.'s No. 23-B Wilson, 1,395 feet; Roxana Petroleum Corp.'s No. 1 Mangold, 1,305 feet; Sorsfield and others' No. 1 Sloop, 1,080 feet; The Texas Company's No. 1-B Dycus, 810 feet; No. 33-B Wilson, 1,304 feet; Whittekin and others' No. 1 McCrory, 1,150 feet; Barnsdall Oil Corp.'s No. 2 Lowe, 605 feet; B. S. & B. Oil Co.'s No. 1 Ward, 1,020 feet; Fisher and others' No. 9 Rogers, 760 feet; Golding and others' No. 2 Lauster, 1,005 feet; Magnolia Petroleum Co.'s No. 10 Portwood, 531 feet; Richards and others' No. 1 fee, 1,175 feet; Shaw and others' No. 1 Robinson, 830 feet; The Texas Company's No. 7 Bearden, 1,000 feet; Texas Unity Oil Co.'s No. 1 Kreeger, 1,390 feet; Camp Oil & Gas Co.'s No. 1 Bell, 1,290 feet; Carter and others' No. 4 Cowan, 610 feet; Consolidated Oil Co. and The Texas Company's No. 2 Coody, 1,010 feet; Creath and others' No. 1 Turbeville, 785 feet; Flowers and others' No. 1 McCarty, 1,103 feet; Perkins and others' No. 13 Anderson, 537 feet; Texhoma Oil & Refining Co.'s No. 13 Oldham, 1,305 feet; No. 6 Wolf, 607 feet; No. 2-B Wolf, 1,295 feet.

Coleman County

Burke and others' No. 1 Dibrell, 850 feet; Canyon Oil & Gas Co.'s No. 1 Parson, 1,630 feet; Curtis and others' No. 1 Seally, spudding; Evans and others' No. 1 Walker, drilling at 1,375 feet; French and others' No. 1 Morris, 1,620 feet; Hughes and others' No. 1 Morris, spudding; Magnolia Petroleum Co.'s No. 1 Morris, cleaning out at 3,162 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Dibrell, spudding; Midwest Exploration Co.'s No. 1 Dibrell, drilling at 1,480 feet; Moore and others' No. 1 Morris, 400 feet; Owen and others' No. 1 Baker, underreaming; Pennant Oil & Gas Co.'s No. 1 Neeb, drilling at 925 feet; Superior Oil Co.'s No. 1 Helton, 955 feet; Gillespie and others' No. 1 Whitfield, 200 feet; Howard Petroleum Co.'s No. 1 Stearns, 970 feet; Monroe Production Co.'s No. 1 Hutchings, 1,000 feet; No. 2 Overall, 850 feet; Raney and others' No. 1 Overall, 1,085 feet; Ross and others' No. 1 Haygood, 1,290 feet.

Brown County

Anderson and others' No. 1 Williams, 2,290 feet; Barbour Oil Co.'s No. 7-B Prather, 1,280 feet; No. 8-B Prather, showing oil at 1,315 feet; Barkley and others' No. 3 Dunn, drilling at 840 feet; No. 4 Dunn, 400 feet; No. 5 Dunn, spudding; Boysen and others' No. 1 Boysen, drilling at 2,000 feet; Carter and others' No. 1 Stapp, fishing at 1,000 feet; No. 1 Wheeler, spudding; Conway Brothers' No. 5 Chambers, drilling at 1,200 feet; No. 5 Pickett, 400 feet; Cosden Co.'s No. 7 Westerman, 900 feet; Cox and others' No. 1 Algood, 1,775 feet; Curry and others' No. 1 Kilgore, 410 feet; Denney and others' No. 1 Cason, 875 feet; Douglas and others' No. 1 Graham, fishing at 1,135 feet; Gillespie and others' No. 2 Newton, drilling at 680 feet; Gilman and others' No. 9 Chambers, 600 feet; Gray and others' No. 1 Lewis, 1,730 feet; Cross and others' No. 2 Byrd, 860 feet;

Haggard and others' No. 2 McDonough, 650 feet; J. K. Hughes Development Co.'s No. 3 Arledge, 800 feet; Humble Oil & Refining Co.'s No. 4 Dunn, 794 feet; No. 5, at 360 feet; No. 2 Hodnett, 1,110 feet; No. 2 Stover, 300 feet; Jarvis and others' No. 1 Graham, 300 feet; Landreth Production Co.'s No. 1 Prather, 800 feet; McCarter and others' No. 2 Allen, 490 feet; McLester Oil Co.'s No. 3 Woolridge, 325 feet; Milham Corp.'s No. 1 Eddington, 800 feet; Mook Texas Oil Co.'s No. 4 Newton, 1,238 feet; Moorman and others' No. 1 Byrd, 920 feet; Mount and others' No. 2 Gains, 1,000 feet; Prairie Oil & Gas Co.'s No. 1 Turner, in sand at 1,510 feet; Root and others' No. 1 Buzbee, fishing at 810 feet; Shadbolt and others, No. 1 Lewis, drilling at 1,174 feet; Slick and others' No. 3 Starr, 2,260 feet; E. L. Smith Oil Co.'s No. 2 Dunn, spudding; No. 1 Eddington, drilling at 300 feet; States Oil Corp.'s No. 3 Allen, 400 feet; The Texas Company's No. 2 Dunn, 735 feet; No. 3 Dunnis, 725 feet; No. 4 at 422 feet; Arkansas Fuel Oil Co.'s No. 1 Gaines, 480 feet; Moore and others' No. 2 Clark, 400 feet.

Callahan County

Canyon Oil & Gas Co.'s No. 4 Barr, fishing at 800 feet; Clark and others' No. 1 Seamans, drilling at 960 feet; Diamond and others' No. 1 Terry, 1,560 feet; French and others' No. 1 Maddux, 1,305 feet; Mook Texas Oil Co.'s No. 1 Baum, 1,550 feet; Transcontinental Oil Co.'s No. 1 Gorsuch, underreaming; Weiler Brothers' No. 1 B'ock 31, drilling at 1,200 feet; Wilkerson and others' No. 1 Barr, 1,870 feet.

Mitchell County

Eastland Oil Co.'s No. 1 Handley, 2,640 feet; Mid-Kansas Oil Co.'s No. 1 Elwood, fishing at 2,670 feet; Marland Oil Co.'s No. 1 Shumaker, drilling at 3,195 feet; Magnolia Petroleum Co.'s No. 3 Adams, 2,689 feet; No. 1 Kloh and Ramsey, 1,555 feet; California Co.'s No. 2 Adams, 1,910 feet; No. 4 Womack, 2,280 feet.

CALIFORNIA GASOLINE MARKET IS STRONGER

LOS ANGELES, Calif., Mar. 27.—Since the recent price advances in gasoline and crude, local marketers distributing so-called "bootleg" gasoline in and around Los Angeles have also raised their prices somewhat. While a few signs can be seen at six gallons for $1, there is not very much available at this price. Quite a little of this inferior gasoline is being sold at 18 cents per gallon, including the state tax. A number of signs at service stations read five gallons for 90 cents and six gallons for $1.05.

There are not nearly as many different brands of "bootleg" gasoline for sale at present as eight months or a year ago. The brands that have held their own, however, have built up a reputation, so that motorists instead of just asking for five for 95 cents gasoline, now ask for the gasoline by name. This actual demand for certain brands makes it possible to sell these gasolines at a little higher price than "bootleg" gasoline without a name or with a name that is not established.

Natural gasoline remains very strong with every indication it will continue so. Statistics released by the Associated Oil Co. show that natural gasoline production in southern California showed a slight decrease during February for the first time in a year. During January, the daily average production was 797,356 gallons, or a total production of 24,718,042 gallons for the month. This is the largest production ever turned out by the plants in southern California. During February, production was down about 2,000 gallons per day, the daily average being 795,106 gallons. Unless a new field is discovered, production will probably continue to fall off gradually.

According to statistics just released by the American Petroleum Institute the trend of California stocks changed decidedly during February. In January and months previous, heavy crude and fuel oil stocks increased very much faster than stocks of light refinable crude. Figures for January showed an average of 23,350 bbls. daily of heavy crude and fuel oil went to storage, while light oil showed an average daily decline in storage of 14,315 bbls. During February, however, heavy crude stocks increased at the rate of only 2,472 bbls. per day, while light crude showed a daily average increase of 23,650 bbls. This change in storage increase is not due to a change in the rate in production of heavy and light crudes but rather to heavy shipments made of heavy crude. February is expected to be an exception, however, as an increased gasoline production to meet the coming summer demand will of necessity require more and more of the light crude. On the other hand, the fuel oil demand will tend to lessen which will result in the building up of heavy crude and fuel oil storage.

PENNSYLVANIA MARKET SOFT DURING PAST WEEK

OIL CITY, Pa., Mar. 27.—Despite a few strong points in the list of products the general trend of the refined petroleum market here during the past week was soft. Demand was light in the case of many of the products but an improvement is expected with the coming of better motoring weather.

Gasoline was especially weak during the week, the demand being off considerably. Prices, however, held firm. Refiners and jobbers here are looking for a strengthening during the coming week on account of the hoped for arrival of better weather and the putting into service of many automobiles which have been stored during the winter.

Kerosene continued to be very strong and prices were a little higher. The demand for fuel oil was also holding up well although prices were unchanged. Neutrals were in good demand but had a downward price tendency. Wax was unchanged.

Cylinder stocks were the weakest feature of the market, there being no demand and quotations sliding off some.

OKLAHOMA REFINED MARKET STRENGTHENS

(Continued from Page 20)

gasoline out of North Texas, Oklahoma and Kansas were sufficient to cause advances in these products, with 64-66, 375 gasoline moving at 12¼ to 12½ cents and the 60-62 400 grade at 11¼ to 11½ cents.

On the U. S. Motor gasoline, refiners were able to get 10¼ cents easily and some material moved at 10½ cents. A few refiners were quoting as high as 10¾ cents. Although the advance in this grade was largely out of expectation of increased domestic demand rather than on actual spot business, yet there was a little more activity than in previous weeks. There also was a little better demand for the 56-58 450 grade resulting in this product being scarce under 9¾ cents.

Natural Gasolines and Blends

Some expected spot orders of substantial size caused a slight strengthening of natural gasolines, particularly the A grades, the past week but Monday and Tuesday these products were off again. The A grades were available at 9 to 9¼ cents, the B grades at 8¼ cents and C at 8 to 8¼ cents.

Natural gasolines are being watched now with interest as contracts of the New Orleans Refining Co., a Dutch-Shell Co., and a new buyer on a large scale of natural gasolines in the Mid-Continent, begin April 1. A check of these contracts the past week revealed that this company will buy more than 1,000 cars a month from Texas and Oklahoma.

These contracts are sufficient to take a great deal of material off the market and if other important buyers renew their contracts the spot market for natural gasolines may be due for another good year. However, so far, these other buyers have shown no inclination to make new contracts which leaves natural gasolines in an uncertain position.

Kerosenes and Distillates

There was little change in kerosene and distillates. Kerosene prices were steady although demand was not active. The 41-43 water white grade was quoted at 6⅝ to 6¾ cents and the 42-44 water white at 7⅛ to 7¼ cents. Distillates showed no tendency toward easing up and 38-40 grade still was unobtainable under 4⅜ cents.

Fuel Oil and Gas Oil

The increased tightness of fuel oil caused further advances in some grades of this product. Fuel below 22 degrees was in demand even at $1.27½ to $1.30. The 22-26 grade moved at $1.27½ to $1.32½ and the buyers were freely offering as high as $1.35 for 24-26 fuel. Higher gravity fuels were practically off the market but quotations ranged from $1.40 to $1.45 on 26-28 fuel and $1.45 to $1.50 on 28-30.

Some buyers reported they felt a slightly easier tone in gas oil but this condition apparently was not general and quotations were strong at last week's market of 4⅛ to 4¼ cents.

Lubricants and Wax

The good weather the early part of the last week brought a slightly improved movement of lubricating oils for some manufacturers but on the whole the situation now is still unsettled. Prices remained practically unchanged. Wax was featureless.

SIGNAL HILL GASSER BURNS THREE DERRICKS

LOS ANGELES, Calif., Mar. 27.—Following a 12-hour battle with a fire that caused over $200,000 damage, oil workers and Long Beach firemen succeeded in smothering the flames from one of the most destructive gassers that ever blew in at Signal Hill. Over 6,000 pounds of live steam from a battery of 60 boilers was shot into the flames.

The gasser was the property of the Wilbur-McAlpine-Craig Oil Co., well No. 3, that "blew in" with a pressure estimated at 15,000,000 feet. A few minutes after it came in the gas caught fire while drillers were engaged in removing the cement plug, preparatory to completing the well. Friction, caused by the blowing out of the plug, ignited the flow of gas and the stream of flame shot southward at a level of five feet above the ground and engulfed surrounding wells.

The derrick of the Keck-McWherter No. 3, 30 feet south, burned and collapsed at about the same time. Three derricks and three tanks were destroyed. The derrick of No. 1 Julian-Laughlin was torn down to make room for dynamiting operations.

LONG-LIVED PANHANDLE FIELD IS FORECAST

(Continued from Page 54)

along the main axis. It also fingers out into shale toward the east quite rapidly, forming a big blue shale group with thin limestone in it. In the writer's opinion it correlates with the Big Blue group of the Kansas Permian. Toward the west it also changes to shale quickly, and only group correlations of strata are possible at this time.

Throughout the 800 feet of limestone section fossils of any sort seem to be very scarce. In addition to the shale there are many streaks of anhydrite and dolomite which seem to lens out and in, in short distances. At the base is a 200-foot zone which contains much dolomite and some oolite in strata up to 18 or 20 feet in thickness. This is the main gas producing zone and also the oil producing zone in the Hutchinson County Field. It also produces oil in Wheeler County, though the zone is only about 120 feet thick at that locality and does not seem so porous. While this zone is the important oil and gas bearing reservoir in the Panhandle Anticline and it may be stated that at least 35 per cent of this zone is sufficiently porous to carry oil, yet the writer is not prepared to make any detailed correlations of the porous streaks within this zone nor to make any definite statement as to the source of the oil and gas. Below the dolomite is a gray shale zone from 150 to 175 feet thick and like the lime above contains much anhydrite, and in Carson County causes caving trouble in drilling.

Beneath these shale beds the wells near the axis of the structure encounter minor thicknesses of red and blue shales alternating with arkosic sands consisting of fairly sharp fragments of quartz and feldspar, and minor portions of hornblende and other minerals. This section applies very closely to Gray and Wheeler Counties, with the exception that the upper Permian is thinner toward the east due to erosion and the lime series contains more shale and less lime.

The arkosic sand and conglomerate varies from a few feet on the tops of the major domes to 250 feet or more down on the flanks and rests on fresh crystalline or metamorphic rock. It is thickest in the embayments and missing in some wells 4 or 5 miles from the ridge. It also carries a large percentage of lime away from the axis. A dozen or more wells have stopped drilling in fresh hard crystalline rock. Several wells on the flanks of the main anticline drilled through as much as 50 feet of coarse arkosic sand and boulders and penetrated limestone and shale beneath. Holmes' No. 2 Morse, in Gray County, encountered black shale and coal beneath granite wash, and the Prairie Oil & Gas Co.'s No. 1-A Farwell, in Hartley County, encountered a change of formation at 4,275 feet, and from that point to the bottom of the hole at 5,010 feet, drilled through "dark lime and black slate" which may correlate with the Magdalena limestone of New Mexico.

Buried Islands of Igneous Rock

The existence of buried hills or islands of granite or other hard rock is not new, but its significance with regard to oil has been appreciated only since 1916 when granite was encountered in drilling wells along an anticline in Central Kansas.

This buried granite ride was found to extend from the El Dorado Field northeastward through Cottowood Falls, Zeandale, Seneca to Table Rock, Neb. The main producing oil fields lie on the south end of this ridge at Augusta and El Dorado, Kans., where the granite is quite deep and the Stapleton sand at El Dorado is in reality composed of detritus from this ancient ridge. Other pools were found along the west side of the ridge at Potwin, Peabody and Florence, Kans. The deep sand at Healdton, Okla., has been found to lie around a buried island of Arbuckle limestone.

The main significance of these buried ridges and hills lies in the manner in which the overlying sediments were arched by unequal settling rather than by lateral compression or regional diastrophism and also in the origin, extent and character of the sands which form the oil reservoirs. In most cases granitic sand bodies do not appear to extend over the highest parts of the buried hills but rather to lie about their flanks, and are thickest in reentrants. The highest portions of the buried granite or other crystalline rock have been swept clean of sand and other porous material and the embayments are filled with the out-wash either by streams or by wave action along ancient shore lines. It is probable that some of these sand bodies were formed as spits and bars along the shores of the ancient island or islands. But data is insufficient at present to determine this with certainty.

The facts gathered from the wells drilled on the Panhandle Anticline indicate clearly the existence of at least seven buried masses of igneous and metamorphic rock, over which the sediments, after deposition, have compacted and settled, causing domes which are more or less connected into an anticline of enormous size extending from the Wichita Mountains in Oklahoma northwestward across the Texas Panhandle to Eastern Hartley County, and possibly, in a broad way, to the eastern rim of the Raton Basin.

Another buried hill which should be mentioned is known as the Bravo Dome. It is in western Oldham County. This dome has been drilled at several points and granite reported as shallow as 2,300

feet, but it has not been sufficiently prospected to say whether oil is present on its flanks or not. However, the stratigraphy in this area is not encouraging.

Faulting

An outstanding fact regarding Panhandle anticline is the presence of two large faults which have been located by subsurface data. One has been traced from the northwest corner of Potter County southeastward to the vicinity of Conway in southern Carson County. This fault has the downthrow on the southwest side with a maximum throw of about 1,400 feet in the lower Permian and dying out toward the surface, with no evidence of faulting in the Triassic strata which are found crossing this fault at the surface. There is some doming south of this fault in the vicinity of Gentry, about 10 miles northwest of Amarillo, as shown by several gas wells in this locality.

The other fault is probably of equal magnitude and also runs in a northwest-southeast direction, being fairly well defined in Central Beckham County, Oklahoma, and running northwestward between the Shedden-Emler well and the Skelly-Davis well of Wheeler County, Texas. This fault has a downthrow on the northeast side with a maximum displacement of well over 1,000 feet in the lower Permian, also dying out toward the surface. The writer does not know if there is any evidence of faulting at the surface in this trend or not. These faults are doubtless much greater in the Pre-Cambrian than in the Permian and reveal the structural inclinations of the basement rocks of this region, which caused these ancient mountains in, a striking manner.

These faults explain in large measure the westward extension of the Anadarko Basin and the Canadian trough of Central Potter County.

Oil Bearing Sands

As stated earlier in this paper, the porous strata in the Big limestone series are filled with gas all along the higher portions of the major anticline. To date, with two exceptions, the oil has been found along the north flank of the anticline in sandy dolomite in the lower part of the lime series, and in granitic sands, and gravel beds beneath the Big lime. One exception is a good showing of oil in the Culberson No. 1 well, in Central Carson County, south of the axis. The other is a showing of oil in the Silk-Medley well in Southern Gray County.

The oil sands vary from several feet to 60 or 80 feet in thickness. The granitic sands appear to be thickest in slight embayments or depressions extending northward from the axis as much as 4 or 5 miles in places and skirting around the granite islands much as beach sands might, suggesting that if they were stream deposited they were doubtless reworked by the early Permian sea. However, the sands which the writer has examined consisted of coarse grains of quartz and feldspar that are only partially rounded. Some of the grains are quite angular, with only a small amount of cement and indicate high porosity. The outward limits of these sands carry water. The water level, by coincidence, follows within 20 feet of present sea level. That is, the present water level on the north flank coincides very closely with sea level.

The granite sands which produce oil mainly in Carson County contain very little cementing material; they are coarse, carrying pebbles as large as a pea, and there is reason to think also boulders of considerable size; they are lenticular and probably overlap each other though they are doubtless elongated parallel to the ancient shore lines and were probably formed at successive stages by the encroaching sea. Because of the coarseness and angularity of the grains the sands are believed to be the result of wave action which would form beach ridges and wave-built terraces. Other bodies of sand may have been formed by shore currents into bars, spits and hooks, and still other portions may be residual.

The "lime sand," which is in reality a porous dolomite containing as much as 50 per cent of anhdyrite, lies about 150 feet stratigraphically above the zone of granitic sands. This zone of dolomite is approximately 200 feet thick. It is a sheet deposit and extends fairly regularly for long distances. There are several porous layers which vary from 15 to 30 feet in thickness so far as known. One layer is decidedly oolitic, whereas another contains openings like a sponge. They are filled with gas on top of the structure and on the flanks for several miles from the axis. Most of the wells producing out 5 miles or more from the axis are making oil from this sand. Still farther out it carries water.

Gas Production

The Texas Panhandle now has a daily capacity of approximately 1,500,000,000 feet of gas and a proven area of 325 square miles of gas territory. This capacity has been estimated from between 50 and 60 producing gas wells, and does not include gas shut in, in oil wells. There are 25 or 30 more wells that were drilled through strata carrying great quantities of gas, but were mudded off and their capacity is not known.

The pressure in all of the wells is very much the same, ranging from 420 pounds per square inch to 460 pounds per square inch, and according to records of wells taken in the early days of the field this pressure has not declined since the first well was brought in in December, 1918.

The gas occurs in the lower Permian strata at a depth of 1,600 to 2,400 feet along the crest, down 2,900 feet on the flanks. It is found in dolomite interbedded with thin limestone and anhydrite. The first gas is usually found about 320 feet below the top of the Big lime series, and at intervals from this point on down through a section of limestone for 500 feet. From three to seven gas sands are penetrated before the oil horizons are reached. The thickness of the gas pay sands varies considerably in different wells but the total porous reservoir strata will average about 200 feet. The uniform pressure of the gas from top to bottom and in various parts of the field suggests communication between the strata and over wide area.

Oil Output

The oil of the Panhandle is very similar throughout the district. It ranges from 34 degrees Baume in gravity to 37 degrees and congeals at 50 degrees Fahrenheit. An analysis of an average sample is given below.

Gravity 35.5° Baume
B. S. .4%
I. B. P. 80° F.

Prod.	Pct.	Grav.	I.B.P.	Max	Flash	Fire	% 410
Gasoline	27.0	52.5	168	448	...	...	93.5
Kerosn.	12.0	41.3	394	...	165	190	...
Gas Oil	25.0	34.5	...	...	235	270	...
W'x dist	25.0	30.7	...	...	260	305	...
Bottms	9.0	14.0	...	...	...	...	...
Loss . . .	2.0	...	...	...	...	...	...

The oil lies in a horizontal zone on the water table which is at sea level or within 20 feet of sea level throughout the field. The upper limit of this oil zone is about 200 feet above sea level whether the oil is found in granitic sands or dolomite. Since the water table is comparatively static the gas is considered the active agent in the expulsion of the oil from the sands; and it is the writer's opinion that when the wells play out there will be more of them going to gas than water. Hence, the decline of these wells is not rapid at first but the curve of decline is more nearly a straight line than the usual decline curve. In other words, the wells show a steady, though not rapid, decline and the latter end of the curve does not flatten as much as in the average field.

The fact that the oil congeals at a relatively high temperature causes trouble in transportation of the oil and the high wax content causes trouble in the parafining of the sands.

However, the thickness of the oil and the size of the area indicated by the drilling to date forecast a long-lived field which will produce a great quantity of oil.

Pressure in the Sands

Among other peculiarities of the Panhandle Field there is one characteristic which is perplexing to the geologists and operators alike. It is the subnormal pressure. This pressure is consistent over a large area, being approximately 450 pounds per square inch in the Potter County Gas Field, in Carson, Hutchinson, Gray and Wheeler Counties, in the "big lime" series and the arkosic sands.

The uniformity of the pressure suggests communication between the porous strata and widespread porosity, in certain strata at least. This, the writer believes to be due to communication along the unconformity between the Permian and Pre-Cambrian. There is undoubtedly sufficient coarse material along this contact which traverses the various strata involved to cause equalization of pressure.

The low pressure of the sands is tied up closely with the present water table in the Permian which is very close to sea level. No permanent water has been reported in the field between a depth of about 1,100 feet and 2,900 feet. The upper and lower limits depend on the elevation of the surface at the hole. The hydrostatic head is about half normal when sea level is reached. The first consideration is that although these strata were deposited in water and were doubtless filled at one time, they have, at least for a long period lacked an adequate source through intake. As stated before the porous strata of the "big lime" series pinch out to the east and to the west and do not outcrop at any place, known to the writer, that is higher than their elevation in this district. Hence, the source of supply and hydrostatic head are missing. What then has caused the receding water table and diminishing pressure? One suggestion will be made; much anhydrite exists in the section which in places is changed to gypsum. Has some of the anhydrite taken up water thus changing to gypsum and depleting the supply, thereby lowering the water table in these strata and at the same time lowering the pressure?

CLOSER CONTACT BETWEEN MINING AND OIL INDUSTRIES IS URGED

Dr. H. Foster Bain, formerly director of the United States Bureau of Mines, and since last summer secretary of the American Institute of Mining and Metallurgical Engineers, spoke at a largely attended luncheon in the engineers' room in the Mayo Hotel, Tulsa, March 29, on "How the Institute Can Better Serve Petroleum Engineers."

In the institute's membership of almost 9,000 there are 25 groups of highly specialized engineering work represented and about 40 per cent of the membership is interested in nonmetallic minerals. Petroleum is the first interest of about 900 of the institute's members and the second interest of about 350 more.

The infiltration of technical men into the petroleum industry, slow at first, has increased rapidly during recent years. The tremendous advantages resulting from the trading of knowledge between groups of specialists was stressed. There is a growing need of a closer contact of the petroleum industry with the mining industry as the more effective recovery of oil from oil sands and the ultimate mining of shale are primarily problems in which the experience of other forms of mining will be of great help.

Doctor Bain referred to the recent changes by which members would automatically receive the publications in the particular line of work in which they were interested and referred to a forthcoming volume which would contain some 50 technical papers dealing with various phases of the petroleum industry. The work of the petroleum division of the institute, while one of its more recent lines of activity has been especially effective of concrete results and more particularly of the dissemination of the spirit of the interchange of ideas, according to Doctor Bain.

LIMA OPERATOR DIES

LIMA, Ohio, Mar. 27.—Louis C. Miller, 70, former widely known Lima resident, died at his home in Akron, Ohio. He was the owner of several valuable oil leases north of Spencerville and in the Kossuth Fields.

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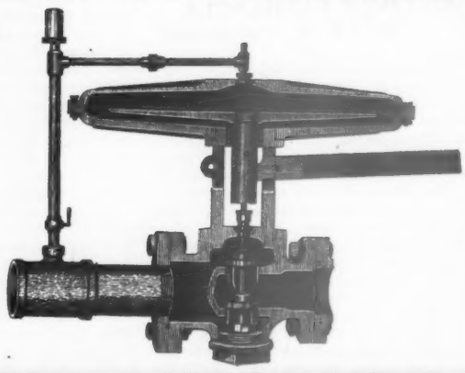

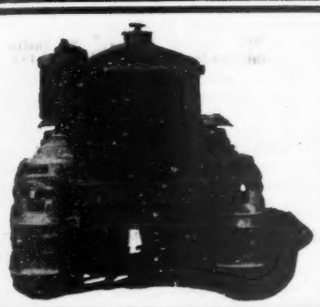

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Two more tributes to The Big Yellow Book: One from an oil man who says he "knows no place where the data he desired could be obtained except through the Journal" and the other from the United States Bureau of Standards complimenting the Journal on one of Mr. Kern's articles.

To The Oil and Gas Journal:

Some few days ago I sent into your office my request for your maps, charts, well logs, etc., also my subscription for The Oil and Gas Journal for a period of six months. Wish to advise that I have received the maps, charts, etc., and find them a wonderful source of information and help.

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I am attaching hereto my check in payment of my subscription for the next six months.

E. C. JUPIN,
Independent Oil & Gas Company,
Arkansas, City, Kans.

From the Bureau of Standards, United States Department of Commerce, Herbert K. Cummings, Assistant Physicist, writes:

I wish to thank you for Mr. Kern's article entitled "Government Test of Cracked Gasoline" which appeared in The Oil and Gas Journal.

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Uses Crude Oil As Cooling Medium

Method Reduces Fuel and Water Costs. Centrifugal Knock-Out Device Used With Reboilers Give Satisfactory Results.

By George W. H. Reid

The No. 1 plant of the Marine Refining Corp. at Vernon, Calif., is of unusual design and construction and possesses many interesting features of operation and control. This 5,000-bbl. unit is located adjacent to the 5,000-bbl. plant No. 2, which was described in The Oil and Gas Journal, issue of February 18. The tower is shown in the background of Figure 1, accompanying this article.

Each of these plants operate as a distinct and separate installation, a separate operating crew being in charge of each skimming plant. Both plants operate on the same type of crude as charging stock and both installations deliver

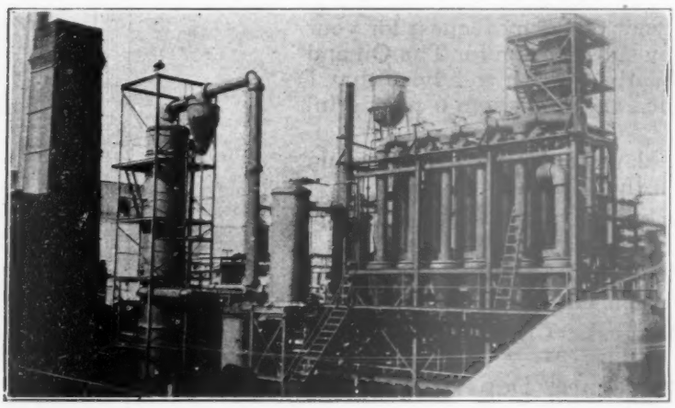

Figure 1

their streams of condensate to a common receiving house, where, as a rule, the distillates are diverted to separate run down tanks. The streams are collected separately for the purpose of accurate checking of plant yields. The methods of distillation, condensation and the results secured in the operation of the No. 2 plant were discussed in detail in the first article. At this time the construction and operation of the totally different method of skimming as practiced in the No. 1 plant, will be presented.

Embodied in the operation of the plant are four separate circuits of flow—that of the crude, which is split into the flow of residuum and vapors, and the closed circuit of the cooling oil employed in controlling the temperature of the two primary dephlegmators and the six reboilers or intercoolers.

The incoming crude oil is handled very much in the same manner as that described in the operation of plant No. 2. The crude while cool, is employed as a cooling medium for eight of the nine streams derived from the plant. The crude flows through equipment built very much after the manner of the usual counter current flow pipe heat interchanger; where it cools the streams derived from the reboilers at about 110 degrees Fahrenheit, and is itself heated by the interchange to about 130 degrees Fahrenheit. This equipment was not constructed, however, with the intention of materially heating the crude, but solely and primarily for the purpose of cooling the condensate, thus doing away with water type coils or coolers, and incidentally reducing the water costs to a very satisfactory extent.

Heat Exchangers

The crude is charged through this after cooling system into the heat exchangers, two in number, of company design, which will be described later in conjunction with the residuum circuit. Leaving the exchangers the crude, at a temperature of 270 to 300 degrees Fahrenheit is conducted to the tubular retort. This restort, as shown in Figure 2, on the extreme right, is constructed of 4-inch pipe, 20 feet long, consisting of 96 joints of pipe. The furnace is baffled in two places to divert the flow of the hot gases of combustion and holding them in the furnace and heating zone for a longer period of time.

The tube still is usually fired at a temperature of around 500 degrees Fahrenheit, or sufficient heat to assure the vaporization of all distillates above fuel oil, which oil is produced to the specifications of 180 degrees Fahrenheit flash (Pensky closed cup) and about 20 degrees A. P. I. gravity. The heated oil enters the evaporator near the top, descending through a series of baffles to the bottom outlet line, from where the oil, as residuum, is conducted to the heat exchangers.

At the evaporator the oil is split into the vapor and the residuum circuits. Following the residuum circuit, the hot oil entering the exchangers is conducted into this equipment through a header which splits the flow into 18 streams through 18 separate spiral coils which are closely packed in the exchanger shell. The coils range in diameter or size of pipe, from 1¼ inch to 2 inches. All the coils converge at the bottom of the exchanger into a second header. After the oil flows through the first exchanger it is picked up by the residuum pump and forced through the second exchanger, which is a duplicate of the first, and on to fuel oil storage. The hot oil enters the exchangers from the evaporator at about 475 degrees Fahrenheit is passed through the two exchangers to leave for storage at a temperature of about 225 degrees Fahrenheit showing a decrease in temperature of 250 degrees. The crude entering the exchangers at a temperature of 130 degrees Fahrenheit leaves them enroute to the tubular retort at 270 to 290 degrees Fahrenheit.

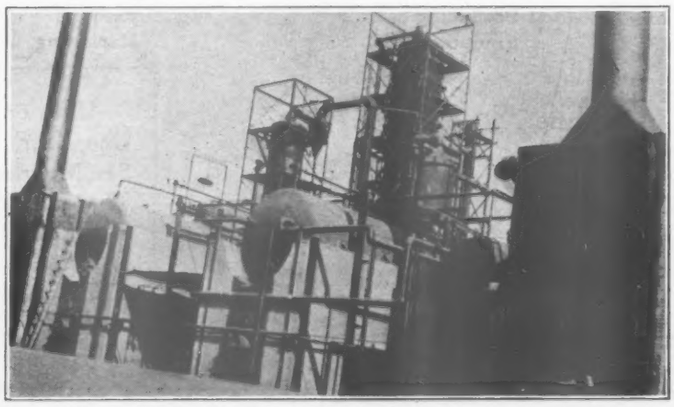

Figure 2

Vapor Circuit

The vapor circuit, starts at the top of the evaporator. First, the vapors are conducted through a 12-inch vapor line to the centrifugal knock out device, as shown in Figure 1, suspended just in front of the evaporator. This knock out device is of company design, and is found installed throughout both of the plants wherever they are deemed of value. Figure 3 shows the details of construction of this equipment. Six of these centrifuge "bulbs" are used in conjunction with the reboilers, or intercoolers, in plant No. 1.

The vapors entering, whirling through and leaving the centrifugal device, drop out an appreciable volume of entrained off color heavy distillate which is returned to the evaporator through the small line at the bottom. Next, the vapors are conducted through No. 1 and No. 2, primary dephlegmators, where the heavier fractions are condensed and drawn off as finished streams, conducted through the after coolers, cooled by the incoming crude oil, and taken to storage. At the top of the dephlegmator, as shown in Figure 1, there is a small header through which cool oil is pumped and carried through seven spiral coils inside of the tower. In this manner the heavier "ends" are condensed. Leaving the two primary dephlegmators the vapors, which have been stripped of a portion of their heavier components, enter the series of reboilers, or intercoolers, and are conducted from one intercooler into the next, and so on through the series of six. Each cycle of the six condensing a portion of the heavy vapors, leaves the lighter vapors to pass on through the entire system, uncondensed.

In entering the reboilers, condensing columns or intercoolers, the vapors flow downward from the top of the column, passing through a network of closely woven spiral coils, through which cool oil is circulating, where they are cooled partially, then out at the bottom and taken laterally into the side of the centrifugal knock out devices. As shown in Figure 3 of the knock out device, the vapors pass into the top, whirling downward to the bottom, dropping any condensate there, and then pass upward and over into the next condensing column, to be further cooled and condensed before passing into the next whirling device where another stream is taken off through the bottom of the device, and so on through the entire six cycles, cooling and condensing and removing a small portion of the vapors in each cycle, until, upon leaving the last centrifugal device, the remaining vapors are condensed in Southwestern condensers as the entire cut of gasoline. Thus the gasoline is vaporized, fractionated and condensed in one operation.

Each of the centrifugal knock out boxes, or "bulbs", acts as a collector for any portion of the condensed vapors passing into it, and from each bulb is derived a separate stream. Thus the two primary dephlegmators and the six centrifuge devices are the source of eight close cut streams, the ninth stream being overhead or the gasoline content of the crude charged, the residuum from the evaporator might be termed the tenth. stream.

Certain of these streams are combined, of course, to make the various distillates. At present the unit is producing gasoline, kerosene, distillate, gas oil, and fuel oil residuum. The fractionation of

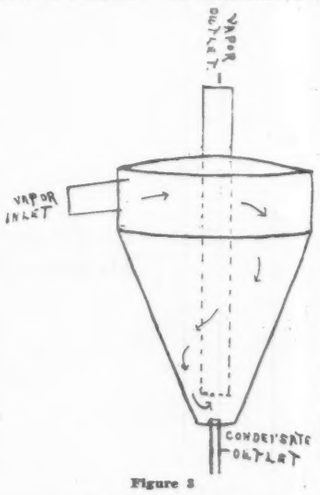

Figure 3

gasoline and percentage recovery is satisfactory, checking very close to the laboratory analysis of the crude charged to the plant. The gasoline prepared for Los Angeles city specifications off the apparatus runs about 53/54 A. P. I. gravity, initial boiling point 125 degrees Fahrenheit; 90 per cent over at 374 degrees Fahrenheit, and 430 end point.

Fourth Circuit

The fourth circuit, as previously mentioned, is closed, and functions to circulate the cooling oil through the system of condensing colums, or intercoolers, and dephlegmators. In each of the intercoolers are constructed closely woven spiral coils which diverge from a header at the top of the reboiler, to converge into second header at the bottom. Each reboiler, or intercooler, is practically a duplicate of the others, and all six intercoolers and the two primary dephlegmators receive their cooling oil from a common header line, and return it to a second common line which conducts the oil, after passing through the intercoolers and dephlegmators, back to a water cooling tower where it is cooled to atmospheric temperature. It is then conducted to a large vertical closed storage tank. The pump handling the cooling oil, takes suction from this tank, charging the cooling oil to the closed coils in the intercoolers, etc., and forcing it back through the water cooler coils to the tank, circulating the oil repeatedly through the closed circuit. This oil is especailly prepared for this purpose by

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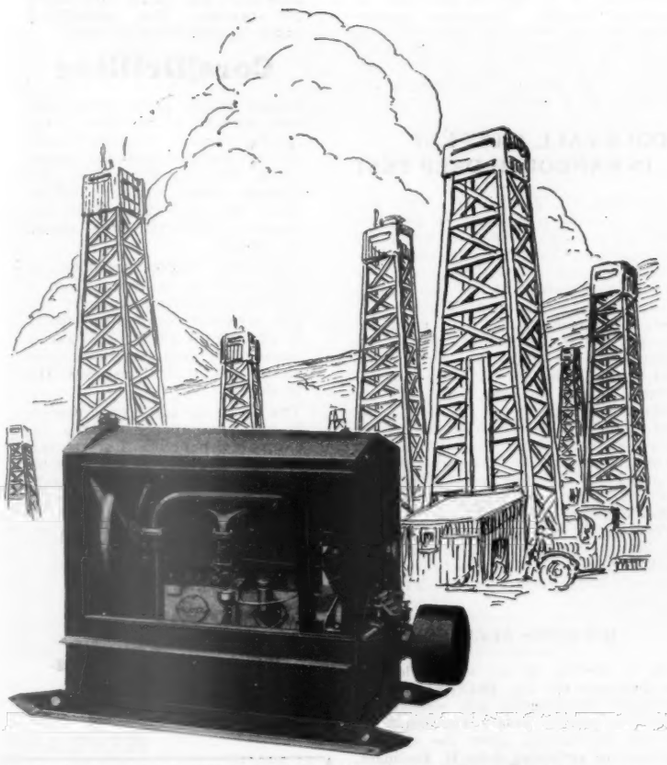

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FOR 36 YEARS MAKERS OF BRISTOL'S RECORDING INSTRUMENTS

DIXON'S *ALUMINUM-GRAPHITE* PAINT

A new addition to the paint line of Dixon's Graphite Products and developed primarily to meet the requirements of gas, oil, industrial companies, and in fact, wherever an aluminum or light colored paint is desired. It has been prepared with the same thought and care as has made Dixon's Silica-Graphite Paint and Dixon's Red Lead-Graphite Primer famous for quality and durability.

COMPOSITION

Aluminum is combined with Dixon's Flake Silica-Graphite for the pigment and highest grade boiled linseed oil is the vehicle. When aluminum is used for paint pigment it is of flake formation, and when combined with the flake silica-graphite, each flake laps over similar to fish scales and the two form a covering of great elasticity and durability. These scales of aluminum and graphite overlap so closely that nothing can penetrate to the under or painted surface.

ADVANTAGES

Gases, fumes, acids, smoke and deteriorating agents have little, if any, effect on Dixon's Aluminum-Graphite Paint. The natural enemies of paint,—sunlight, air and moisture, are resisted and its original color is retained long after light-colored paints have darkened. Its ability to reflect light and heat make it highly desirable for industrial uses. When used on oil storage tanks, evaporation is lessened and the interior of tanks so painted will be 10° cooler than if dark colored paint is used. This applies as well to tank and refrigerator cars where coolness is desired.

COVERING POWER

The estimated covering power is 400 square feet to the gallon on metal work and 250 square feet on woodwork. It may be sprayed or brushed on and one coat will prove to be sufficient to properly cover a darker under coat.

RECOMMENDED FOR

Gas Holders	Tank Cars	Purifiers
Bridges	Oil Storage Tanks	Pipe Lines
Hydrants	Interior of Buildings	Mail Boxes
Grain Elevators	Refrigerator Cars	Derricks
Iron Fences	Water Tanks	Fire and Rolling Doors
Mining Equipment	Guide Frames	Engine and Boiler Room Equipment
Electric and Trolley Poles	Lamp Posts	Radiators
Smokestacks	Generators	Steam Pipes
Towers	Silos	

Iron and Steel Structural Work and all Exposed Metal or Wood Surfaces.

Joseph Dixon Crucible Co.

Established 1827 **Jersey City, N. J.**

the company. To provide for this cooling action the coils inside of the intercoolers consist of 14,454 lineal feet in spiral coils, presenting a total of 4,182 square feet of cooling surface.

The temperature of each intercooler or condensing column and of each of the primary dephlegmators is controlled and regulated by eight individual Foxboro automatic recorder controllers. These instruments control the volume of the cooling oil flowing through each of the eight pieces of equipment, and record the temperature of each. Thus the operator is always acquainted with conditions as to temperature throughout the entire installation. The temperature of heat exchangers, crude and residuum, and of furnace, stock, tube still and evaporator, are also recorded on the control board for the operator's guidance. The plant is the design of F. A. and J. A. Millif of the Marine Refining Corp.

The rundown tanks for storage of distillates and gasoline at this plant are all water top, gas tight in construction. The company has under construction the installation of a small absorption plant which will recover gasoline from the vapors and gases from the receiving house, and also handle the gasoline bearing vapors to be derived from the run down and storage tanks.

ELECT OTHER OFFICERS FOR THE TEXAS COMPANY

The directors of The Texas Co. at the annual meeting at Houston Tex., in addition to electing Amos L. Beaty, chairman of the board, and R. C. Holmes, president, selected T. J. Donoghue as first vice president; G. L. Noble, vice president; D. J. Moran, vice president; W. W. Bruce, vice. president; Harry T Klein, general counsel; C. E. Woodbridge, treasurer; W. N. Capen, vice president (special).

The position of secretary, formerly held by C. P. Dodge, now deceased was not filled. Officers appointed are: Ira McFarland, comptroller; Guy Carroll, assistant secretary-treasurer; W. G. McConkey, E. M. Crone, James A. Merlis, J. B. Duke and J. S. Ballard, assistant secretaries; D. B. Tobey, A. M. Donoghue, G. W. Foster, T. A. Spencer, H. G. Symms and L. H. Lindeman, assistant treasurers; J. S. Ballard, secretary for employes' benefits. Executive appointments included: W. S. S. Rodgers and A. S. Alston, assistants to the president; Ernest Carroll, assistant to first vice president; R. Ogarrio, assistant to Vice President D. J. Moran.

TOOLS FALL 4,300 FEET IN RANDOLPH DEEP TEST

RANDOLPH, N. Y., Mar. 27.—The string of tools being used to drill the deep gas test of Benedum & Trees and others on the Crandall Lot in this Chautauqua County village, dropped 4,300 feet to the bottom of the hole, which is at a total depth of 4,325 feet. The tools were being pulled and when the bit was within 25 feet of the top the cable pulled out of the eye of the swivel and let the tools fall. The cause of the trouble is said to have been that the cable piled too deep on the bull wheel and slipped off, the jar being sufficient to break the connection. The jars and stem were later recovered. The jars were not damaged but the stem was badly "corkscrewed." No great trouble was anticipated in recovering the bit.

The test is in the Niagara Limestone, which was topped at a higher level than anticipated and the owners believe they are on a dome which may be a large gas producer.

OFFICERS ELECTED

At a meeting of the stockholders of the Esslinger Oil Co., Philadelphia, Pa., the board of directors was reelected to serve for another year. The board organized immediately after the close of the meeting reelecting John G. Esslinger, president; Harry H. Zeis, vice president and William H. Baile, general counsel, secretary and treasurer.

Get the Core—

Failure Turned To Success by Core Drilling

Near a famous high-gravity oil field in Oklahoma surface geology indicated the presence of another anticline. Leases were blocked covering the entire area. A test was drilled near the center of the acreage because exposures of strata were so few as to indicate nothing more than the existence of the anticline.

The well was abandoned at 3400 feet as a failure.

Then core drilling was resorted to. The entire area was tested, and a second well started where the cores indicated the high point of the structure to be.

This well found production at 2066 feet, the initial flow being 200 barrels. The interesting point to remember is that

Core Drilling

—may often, as in this case, turn seeming failure into a successful venture, because it substitutes definite facts for guesswork. Core drilling does not depend upon surface indications but goes down into the depths to unearth actual strata for study.

The best recommendation of core drilling is its use on a rapidly expanding scale by the big, wealthy companies which, if any could afford to take a chance on surface indications alone, are in the best position to do so.

The cost of actually knowing is small compared to the inestimable benefits. Let us tell you how we are serving the oil industry in this matter of substituting facts for guesswork.

Mineral Exploration Company

International Trust Bldg.
Denver, Colorado
Atlas Life Building
Tulsa, Oklahoma

And Know All!

"The Name to Know in Belting"

Murruco

ECONOMICAL SERVICE REACHED ONLY THROUGH QUALITY BUYING

A Belt That Won't Bootleg, Stretch or Slip—

—ALSO—

COMANCHE—Heavy Duty Belting.
COMANCHE—Interstitched Belting.
MURRUCO—Air, Steam, Water, Hose
Packings—Rings—Bands
—Rotary Hose—

—Distributors—

PRODUCER'S SUPPLY AND TOOL COMPANY
Fort Worth, Texas

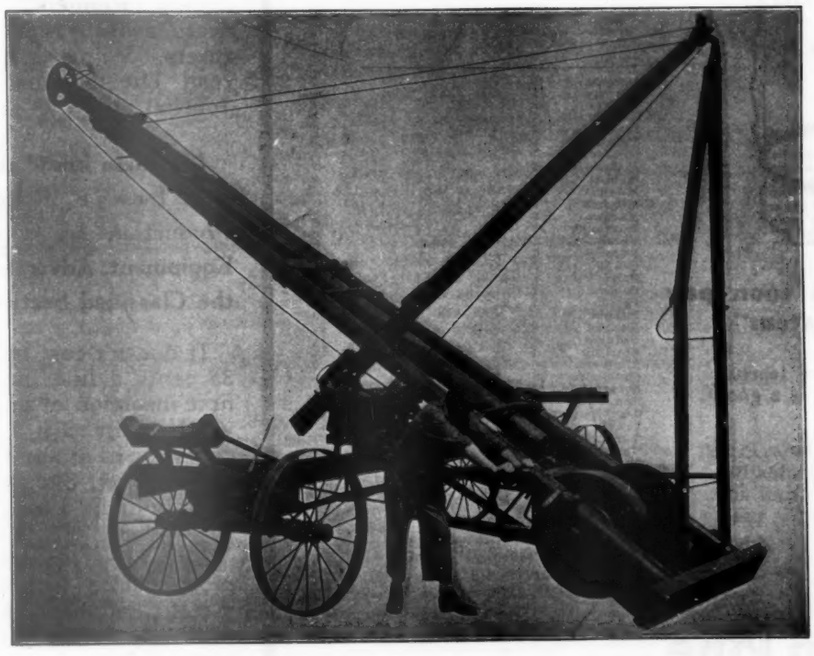
FEDERAL SUPPLY & MACHINE COMPANY
Winfield, Kansas

—and—

MURRAY RUBBER COMPANY
Factories, Trenton, New Jersey

Kansas City Branch, 712 Delaware St., Kansas City, Mo.
Ketchum Bros., 1236 E. 8th St., Los Angeles, Calif.
Empire Supply Co., 440 Bryant St., San Francisco, Calif.
Chicago Branch, 601 W. Randolph St., Chicago, Ill.

A COCK-EYED MAN



Could work to good advantage on some short length pulling machines, where one eye must be on the casing head and the other on the crown pulley. He's not needed on an IRON KING. With lots of room above he can keep his mind on the work before him and forget the ascending elevator.

Three Positions

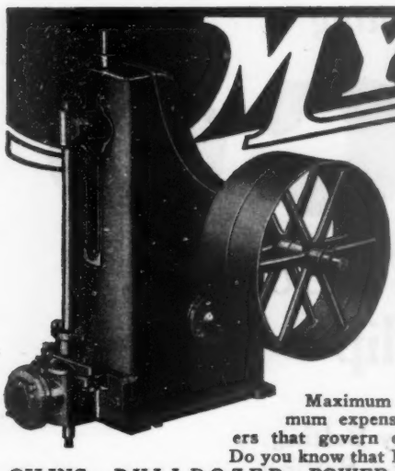
A few twirls of a crank raises the upper section to its two advanced positions where it is automatically locked and ready for business.

If your oil well supply store will not get you an IRON KING write us direct. Where shall we send you our catalog.

The Iron King Manufacturing Co.

BRADNER OHIO

Say You Saw It in the Oil and Gas Journal



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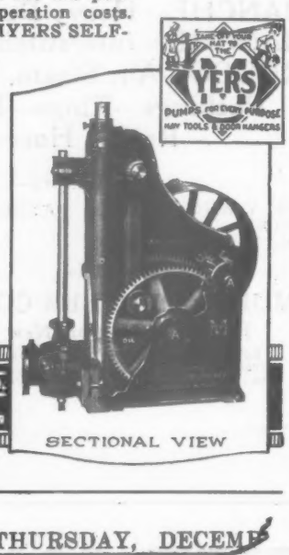
A REGISTERED TRADE NAME

Maximum service—minimum expense are the powers that govern operation costs. Do you know that MYERS SELF-OILING BULLDOZER POWER PUMPS with their positive self-lubrication, enclosed working parts, improved method of power application, extra large valves and other exclusive features have created a new standard of water service, the like of which cannot be equaled by old types of power pumps. Capacities up to ten thousand gallons per hour, with styles for both shallow and deep service, MYERS SELF-OILING POWER PUMPS are cutting water costs in two for many operators. We'll be glad to send catalog and information.



SECTIONAL VIEW

THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS

STAR, WASHINGTON, D. C., THURSDAY, DECEMBER

INSURANCE RATE CUT OFFERED IF WATER PRESSURE IS RAISED

Underwriters Propose 5 Per Cent Reduction as Inducement to Installation of New System Long Sought for City.

As an inducement for installation of a high-pressure water system in the National Capital, the Board of Fire Underwriters here, which represents all the fire insurance companies in the country, has decided to reduce the premium rate 5 per cent, effective when installed. This reduction would be made in the rates on property in the congested district, where the water pressure is now inadequate. It is estimated that the money saved soon would pay for the installation of the system and the fire loss, property and inconvenience to business men would be greatly reduced at the same time be protected. In addition to this the Government would have a much greater protection for

"...the money saved would soon pay for the installation of the system"

LARGE cities throughout the country have learned that an independent high pressure system is a good investment.

Standard Bell and Spigot high pressure Cast Iron Pipe has distinct advantages over other materials. It is flexible, tight and free from corrosion. It is also safe from any danger of collapse where the empty main system is used.

Write for copy of "United States Cast Iron Pipe Handbook," it contains valuable data for engineers.

United States Cast Iron Pipe and Foundry Company

General Offices:
Burlington, New Jersey

SALES OFFICES
PHILADELPHIA, CHICAGO, BIRMINGHAM, BUFFALO, CLEVELAND, NEW YORK, SAN FRANCISCO, PITTSBURGH, DALLAS, KANSAS CITY, MINNEAPOLIS

OPERATIONS IN TEXAS LARGER IN FEBRUARY

SAN ANTONIO, Tex., March. 27.—There were 836 notices of intention to drill in Texas filed with the oil and gas division of the Texas Railroad Commission during the month of February as compared with 670 during January. There were 170 notices of intention to shoot wells compared with 123 for January, 307 notices to plug as compared with 302 in January.

In completions there were 286 producers completed during February, compared with 329 in January and 288 dry holes compared with 292 in January. Of the producers completed 26 were gas wells, the remainder oil wells.

The record by counties from the office of the Oil and Gas Division at Austin, is as follows:

Counties—	Notices to Drill	Notices to Shoot	Notices to Plug	Prod. Log	Dry log	Pl.	Gas
Archer	138	31	59	60	53	51	..
Angelina	1	..	..	..	..	..	..
Austin	1	..	..	..	..	..	..
Atascosa	3	..	..	..	..	..	..
Anderson	2	..	..	..	..	..	..
Bexar	5	..	2	3	1	2	1
Brazoria	7	..	1	2	2	5	..
Brown	84	10	8	21	7	9	2
Baylor	7	..	4	1	3	2	..
Bastrop	1	..	..	..	..	..	..
Burleson	..	..	..	1	1	..	..
Callahan	87	40	35	30	45	46	1
Culberson	..	2	..	..	..	1	..
Commanche	3	..	..	..	..	2	..
Caldwell	13	..	..	9	..	..	..
Coleman	21	1	9	4	10	9	..
Clay	6	..	1	..	1	1	..
Carson	1	..	..	..	..	..	..
Crane	2	..	..	..	..	..	..
Cherokee	1	..	..	..	..	..	..
Chambers	1	..	..	..	..	..	..
Cooke	..	..	..	..	1	1	..
Crockett	2	1	1	..	..	..	..
Cooke	1	..	..	..	..	..	..
Duval	14	..	..	..	..	..	..
Eastland	16	9	10	3	4	6	..
Erath	1	..	..	..	..	..	..
Ellis	..	..	1	..	1	1	..
Ft. Bend	3	..	..	3	2	2	..
Freestone	..	..	1	..	..	1	..
Falls	1	1	2	..	2	2	..
Guadalupe	4	..	..	2	3	1	..
Gray	3	..	..	..	..	..	..
Grimes	1	..	..	..	..	..	..
Galveston	2	..	1	..	2	..	..
Hardin	17	..	3	1	2	..	..
Harris	11	..	..	4	3	3	1
Hutchinson	26	2	..	2	..	..	..
Harrison	4	..	..	..	1	..	3
Henderson	..	..	..	..	3	3	..
Hunt	..	..	1	..	..	..	..
Hill	1	..	..	..	..	..	..
Irion	1	..	..	..	..	..	..
Johnson	..	..	1	..	1	1	..
Jim Hogg	2	..	..	..	..	..	1
Jefferson	3	..	2	6	5	5	..
Jack	1	..	..	..	..	..	..
Jackson	7	..	..	..	1	1	1
Kleburg	1	..	..	..	..	..	..
Liberty	13	..	6	8	1	7	..
Limestone	4	..	2	..	1	2	1
Live Oak	1	..	2	..	1	1	..
McMullen	5	..	..	4	1	..	1
McLennan	1	..	..	..	..	..	..
M'Culloch	1	..	..	..	..	..	..
Medina	3	..	1	1	1	1	..
Milam	10	..	2	4	..	..	..
Mitchell	1	2	1	1	1	1	..
Marion	9	..	..	3	..	..	3
Montague	11	..	..	4	..	..	..
Matagorda	1	..	..	..	..	..	..
Navarro	5	1	3	4	..	..	1
Orange	3	..	3	4	..	1	1
Palto Pinto	8	..	1	..	2	2	..
Pecos	2	1	..	..	..	..	..
Potter	1	..	..	..	..	..	..
Panola	..	..	..	..	..	..	1
Reagan	7	..	..	4	..	..	..
Refugio	3	..	..	..	..	..	..
Sterling	1	..	..	..	..	1	..
Stephens	20	22	20	6	6	15	2
Shackelford	38	4	13	5	16	17	..
Scurry	1	..	..	..	..	..	..
San Patricio	1	..	..	..	..	..	..
Terrell	1	..	..	..	..	..	..
Travis	2	..	..	..	1	1	..
Thrkmrtn	3	1	6	1	7	6	1
Tarrant	..	1	..	..	..	..	..
Taylor	1	..	..	..	..	..	..
Upton	3	3	..	..	..	..	..
Wichita	98	32	56	45	47	40	..
Wilbarger	26	1	11	25	7	6	2
Wilson	1	..	..	..	1	1	..
Williamson	5	..	..	..	4	..	..
Wharton	15	..	..	..	1	1	..
Wheeler	2	1	1	..	..	..	..
Wise	..	..	..	..	1	1	..
Webb	12	..	2	9	2	4	3
Young	35	4	29	6	32	29	..
Zapata	1	..	..	..	..	..	..
Feb.	836	170	307	286	288	293	26
Jan.	670	123	302	329	292	312	33
Difference	166	47	5	43	4	20	7

BOSTON OIL MAN IN TULSA

John J. Moran, president of the New England Oil & Pipe Line Co., of Boston, Mass., is in Tulsa to spend a few weeks inspecting holdings in the Mid-Continent Fields.

Right Now Is the Best Time To Do It

The Oil Industry has a favorable outlook. It has a good background for real expansion.

Good weather is approaching rapidly. Millions of gallons of gasoline and oil will be consumed.

Right now is the best time to deal in Oil Leases, Production, Royalties and used equipment of all kinds.

The Classified Section of The Oil and Gas Journal is the best means to use to reach those who are genuinely interested in a product or service such as yours.

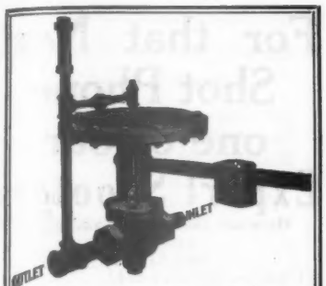
25,000 oil men (Producers, Refiners, Natural Gasoline Manufacturers, Pipe Liners) read The Oil and Gas Journal every week.

Let them know about your Lease, Royalty, Production or Used Equipment. Advertise in the Classified Section.

It doesn't cost much; 35 cents a line for the first insertion of an advertisement and 25 cents for each additional insertion. Six words usually make a line.

Let the readers of next week's issue see your advertisement. Mail it at once. You'll get results.

The Oil and Gas Journal
TULSA, OKLA.



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Regardless what the inlet pressure, up to 500 lbs., and it regulates at one reduction to the lowest pressure desired.

Fulton House Regulators

ALL house regulators are, of course, designed to reduce to a low pressure and are especially adapted for use in supplying private dwellings, whether connected to a high or low pressure service. But, there is **practical perfection** in every inch of the FULTON HOUSE REGULATOR.

When used for extreme high pressure (say from 100 to 500 pounds), where other regulators have been blown to fragments, or failed to work at all, we have never had an accident. Hundreds of these regulators are in use at isolated houses in the gas field, where gas is taken direct from the wells or high pressure lines.

Remember, that the FULTON HOUSE REGULATOR is only ONE member of the Chaplin-Fulton line of gas governors. It is well to bear in mind, when checking over your distribution system, that every member of the Chaplin-Fulton line is made to escape the defects you always find revealed after the winter's work.

Let us know what you need and we will quote you on the Chaplin-Fulton governor that fits.

The Chaplin-Fulton Mfg. Co.
Organized 1884 — oldest builders of gas regulators in the country. Built in all sizes, from 1 inch to 24 inches; for all service, 1 oz. up to 1,000 lbs. pressure to square inch.
28-34 Penn Ave., Pittsburgh, Pa.
171

ALDRICH

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Allentown, Penna.

REPRESENTATIVES WANTED!

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Without obligating you kindly write us about "SALES OPPORTUNITY"

Single Suction Single Stage
"EARLE" TYPE
Double Suction Multi-Stage

CENTRIFUGAL PUMPS

EXCEPTION IS MADE ON STATE LAND LEASE

OKLAHOMA CITY, Okla., Mar. 27.—The State Land Office has departed from its custom of demanding a minimum bonus and a drilling contract with bond attached in the leasing of public land for oil and gas purposes, so far as one tract is concerned, and has adopted a resolution calling for the sale of a commercial lease to a quarter section in Section 36-2n-10w, Comanche County. No strings whatever will attach and the lease will be sold to the highest bidder for cash.

In this section the Magnolia Petroleum Co. recently discovered a new producing oil sand and the well, after two weeks of flowing, is making about 160 bbls. a day. Possibilithies of that area are to be tested by wells drilled deeper.

The land office has authorized the oil and gas bureau to advertise for lease 10,000 acres of State land in the northwestern part of Cimarron County. The Sinclair Oil & Gas Co. asked that the block be put up and it agrees, if it is the successful bidder, to drill a test to 3,000 feet and pay a rental of $1 per acre per year after the first year in the event it decides to carry the acreage. Previously the land office had agreed to advertise two other blocks in that part of Cimarron County of 10,000 acres each, application being made by W. R. and W. E. Ramsey of Oklahoma City.

Offering of these blocks assures the State of securing three tests for oil in the Cimarron River breaks area of Cimarron County within 12 months from the dates of the execution of contracts. Ramsey geologists have made favorable reports as to surface indications. No test deeper than 1,400 feet ever has been drilled in the county.

COSDEN BUYS ACREAGE IN ARCHER COUNTY, TEX.

FORT WORTH, Tex., Mar. 27.—J. S. Cosden and the Consolidated Oil Co. have purchased from L. P. Hammond his Oldham property in the Eliza Hubble survey of Archer County. The property consists of a 70-acre lease on which there are three producing wells making approximately 1,000 bbls gross daily. The consideration has not been made public but it is understood to be around $300,000 in cash.

The deal gives Cosden and the Consolidated together a lease of 270 acres now, the Consolidated already having 200 acres adjoining the Hammond lease. At present the Consolidated Oil Co. is in charge of the property, but it is understood that the Cosden interests will likely take over the operation of the property. Final details of the transaction will not be determined until the arrival in Texas of J. S. Cosden some time this week.

The Cosden interests have just brought in another well in the northern Brown County Field, its No. 1 Williams. The bit had just encountered the top of the sand and the well had responded with about 100-bbl. flow when the rig was destroyed by fire. At present the well is shut down. It is estimated it will probably be good for around 200 bbls. daily.

VENTURA PIPE LINE

LOS ANGELES, Calif., Mar. 27.—franchise to lay pipe lines along Telegraph Road from the easterly limits of Santa Paula to Atmore Road has been granted to the Union Oil Co. by the Board of Supervisors of Ventura County. Relocation of its present pipe line which carries crude oil from the Torrey and Sespe Canyon fields, necessitated the seeking of the franchise.

FEBRUARY AUTO OUTPUT UP

Automobile production in February was 364,618 cars and trucks according to National Automobile Chamber of Commerce preliminary estimate. This compares with production of 314,994 vehicles in January and 287,213 in February, 1925.

O'BRIEN STRUCTURAL STEEL DERRICKS

Eleven years in use and no repair parts necessary on any O'Brien derricks. They will drill your wells and pull the pipe. Will not deteriorate, your salvage will be 100% twenty-five years hence. Your wells are your bank, why not put the best structure over them you can get.

O'Brien Steel Construction Company
Washington, Penna.
Rig Equipment Company, Sand Springs, Okla.

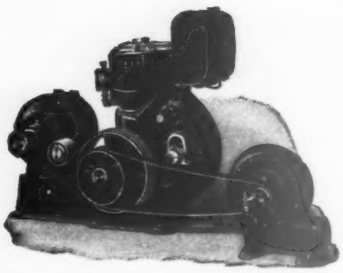
AMERICAN HEAVY DUTY TYPE "C" ROLLER BEARINGS

An Offer to Any Oil Man

Our special knowledge of conditions is available and our Engineering Cooperation is yours for the asking. If you buy or use Traveling Blocks, Crown Blocks, Reverse Clutches,—get our Catalogue 1006.

AMERICAN ROLLER BEARING CO.
PITTSBURGH, PENNA.

Here's *Real* Economy
In Rig Lighting



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The MOON Gasoline-Electric Lighting Plant *starts* on gasoline —then *runs* on kerosene. Think of the saving this means in fuel cost! This is just one of the many good reasons why drilling contractors all over are specifying "MOON" for their lighting requirements.

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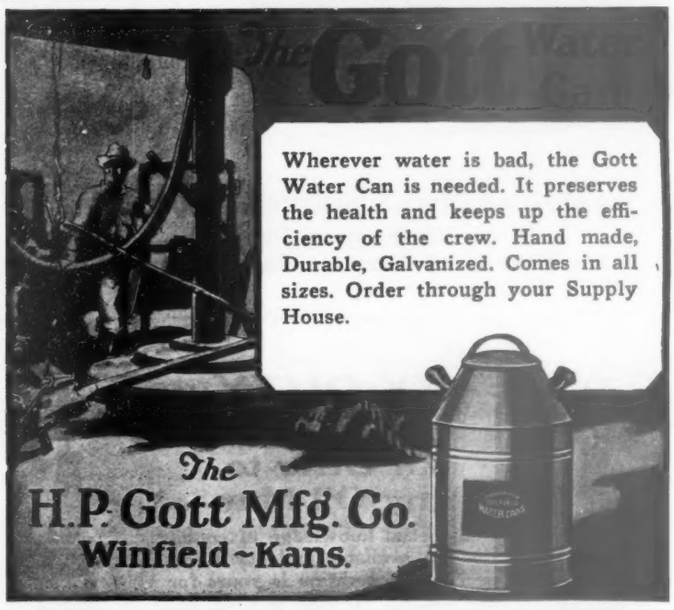
108-128 NO. JEFFERSON ST., CHICAGO, ILL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Winfield~Kans.

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FACED, threaded and drilled ready for installation on either low or high pressure pipe connections. A perfect fit for your standard wrought pipe. Tank and boiler flanges. Seamless forged steel nozzles for all types of high pressure outlet connections. Immediate delivery from a large stock.

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Texas Commissioners And Oil Operators Pledge Cooperation

By P. L. McGreal

HOUSTON, Tex., Mar. 27.—"Cooperation" was the keynote of the addresses delivered during the banquet which was recently tendered by the Gulf Coast oil men to the members of the State Railroad Commission and their associates in the Oil and Gas Division at the Rice Hotel. More than 250 men attended.

The meeting and dinner was for the purpose of having the members of the oil industry meet the state officials who are charged with supervision over the industry in Texas and discussing the adoption of new rules applying to the drilling of wells.

W. S. Farish, president of the Humble Oil & Refining Co. of Houston and recently elected president of the American Petroleum Institute, the first speaker, pledged the cooperation of the men in the industry to the State Railroad Commission in its regulatory work, saying such assistance was for the best interest of all concerned. The ramifications of the industry are far reaching and its connection with the general public now too close for those in it to ignore governmental authority. If the industry is to avoid harsh or unjust legislation, those connected with it must aid and direct public officials and give them the benefit of their knowledge, gained by years of experience in the producing, transportation and refining divisions. The average government official readily admits his lack of knowledge and welcomes assistance from oil men to the end that the best and most satisfactory results be obtained.

Mr. Farish referred to the recent conferences at Washington between the Federal Oil Conservation Board and representatives of the oil industry and briefly reviewed the meetings and discussions there. Much interesting and valuable information had been developed, he said.

Quoting statistics, Mr. Farish said: "From the present wells drilled and the present proven area 5,300,000,000 bbls. of oil can be recovered by pumping and flowing under present methods. There will still be left in theh fields 26,000,000,000 bbls. to be recovered by improved methods, such as pressure production, mining or water flushing as is now being done in Pennsylvania."

"But there are yet 1,000,000,000 acres capable of oil production, 'he continued,' and if 1 per cent of that proves as productive by proportion to the production of the past, it would be eight times that of our present proven area."

Deducing from these figures Mr. Farish said: "The oil industry of the United States will always be able to furnish an adequate supply of motor fuel and lubricants necessary for the nation."

Referring to shale oil, he said: "There are 394,000,000,000 tons of shale available for a yield of 108,000,000,000 bbls. of fuel oil under the heat cracking process, and of that amount 25,000,000,000 bbls. are adaptable for motor fuel, or gasoline."

"Liginite, of which is there in a vast amount in Texas," continued Mr. Farish, "offers a substance or substitute from which 70,000,000,000 bbls. of fuel oil can be taken with 12,000,000,000 bbls. suitable for motor fuel."

Mr. Farish referred to coal as a possible substitute, saying the Germans already have perfected a process to extract wood alcohol adaptable as motor fuel from coal.

Touching upon conservation, Mr. Farish remarked it had been defined as the "economical use of any resource" and said the oil industry was pledged to two prime obligations: to supply the public with fuel as cheaply as possible and to fulfill to the government the obligation of conservation. If the nation's increase and security are wasted, then the $9,000,000,000 invested in the oil industry are equally wasted and jeopardized."

From his close contact with and knowledge of the oil industry Mr. Farish con-

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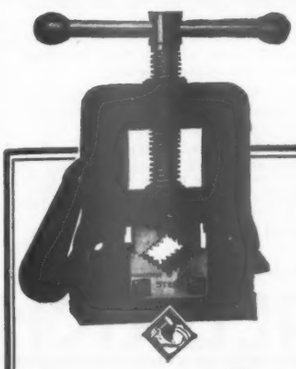

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cluded he felt no fear of a fuel oil famine.

Clarence Gilmore, chairman of the Texas Railroad Commission, followed and recounted some of the obstacles overcome by the Oil and Gas Division when it was first created. He expressed his gratitude to the oil industry for its present hearty cooperation and said the commission had no desire to hurt any one in its regulatory measures. Commissioners C. V. Terrell and Lon Smith each spoke briefly along the same lines.

Judge Bell, chief supervisor of the Oil and Gas Division, explained the necessity for the use of the forms and blank report sheets sent out by the Division in order that the information secured thereby be accurate and uniform. Deputy Supervisors Moorhouse, Lomax, Laughter and Pierson were introduced, as were R. D. Parker, head of the gas utility division and R. C. Humes, gas engineer, and Earl Calloway, chief clerk in the offices at Austin. J. C. Wilson, of Beaumont, made a few remarks and the meeting adjourned.

MAY DRILL TEN WELLS IN TURNER VALLEY

CHATHAM, Ont., Mar. 27.—Speaking at Montreal recently before the Canadian Institute of Mining and Metallurgy, Charles G. Ross, senior mining inspector with the department of the interior at Calgary, reviewed development work in the Canadian West. His paper concluded as follows:

"A general survey of the results obtained from approximately 326 wells which have been spudded in from the commencement of the search for oil and gas in the province of Alberta until the end of 1925 shows that: of 326 wells, 137 obtained gas and 10 obtained oil in commercial quantities, while from 25 to 65 obtained showings of oil or gas, or both oil and gas. All of the remainder, some 120 wells, could not be placed in the 'duster' class as many of these wells were never completed owing to lack of finances and incompetent drilling.

"It is difficult at this time to estimate the extent of the drilling program for 1926. This will depend largely on development in the next few months at the wells nearing completion in the Turner Valley. If one well equal to No. 4 Royalite, is brought in, it is doubtful that anyone could prophesy the development that might follow." Mr. Ross predicted that some 10 wells would be drilled in the Turner Valley this year.

OIL LEASING LAWS ARE BEING AMENDED

WASHINGTON, D. C., Mar. 27.—An agreement has been reached by the Committee on Public Lands of the House of Representatives, on a bill recommended by the Department of Interior, amending the oil leasing laws. This bill was introduced and sponsored by Representative Sinnott of Oregon.

Under the present law only one coal lease and three oil leases are permitted to a lessor in any state. The maximum acreage allowed is 2,560 acres covering both coal and oil lands, but of this only 640 acres of oil land are allowed on known oil territory. It frequently happens there is a little area of 20 acres on a known oil structure and this would exhaust the applicants rights under existing laws. To correct this condition the committee has stricken out the basis of number of leases as a limitation and has made the basis one of acreage instead.

COMPLAINT DISMISSED

WASHINGTON, D. C., Mar. 27.—The Federal Trade Commission has dismissed its complaint against the Waverly Oil Works Co. of Pittsburgh. This company was charged with unfair methods of competition in the use of the words "Tur-min-tine" and "Min-seed-oil" in connection with the ingredients in paints as substitutes respectively for turpentine and linseed oil.

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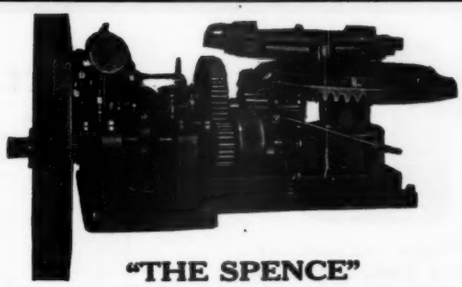

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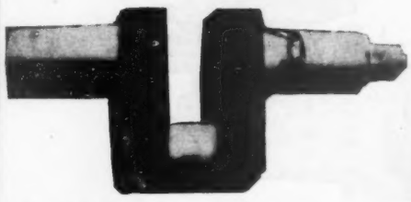

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HOUSTON CO. OFFICIALS INSPECT PROPERTIES

HOUSTON, Tex., Mar. 27.—The directors and officers of the Houston Oil Co. and affiliated corporations held a series of meetings in this city Thursday, Friday and Saturday. The officials will inspect the companies' properties in the Coastal region and in southwest Texas, which include oil and gas production.

The affiliated companies are the Houston Pipe Line Co., transporting natural gas from Refugio, Live Oak, Webb and Jim Hogg Counties to Houston and the Houston Natural Gas Co., a distributing natural gas corporation.

Those attending the meetings were: E. H. Buckner, president, Houston Oil Co.; A. W. Standing, general manager; Judge H. O. Head, general counsel, Sherman, Tex.; T. S. Maffitt, St. Louis; J. F. Shelpey, St. Louis; George Mackubin, Baltimore; L. S. Zimmerman, St. Louis; David Hannah, Houston; N. A. McMillan, St. Louis; S. W. Fordyce, St. Louis; Alanson C. Brown, St. Louis; B. A. Tompkins, New York; Edward Whittaker, St. Louis.

The directors of the Houston Pipe Line Co. are: E. H. Buckner, T. M. Kennerly, A. H. Kennerly, W. W. Blocker, A. S. Henley, H. O. Head, C B. McKinney, Edward Whittaker, L. S. Zimmerman, George Mackubin and George A. Hill, Jr.

The directors of the Houston Natural Gas Co. are: E. H. Buckner, C. B. McKinney, McDonald Meachum, David Hannah, L. S. Zimmerman, George Mackubin, T. M. Kennerly, George A. Hill, Jr., and H. O. Head.

The party inspected the local connections of the Houston Pipe Line Co. and the projected line across the Houston ship channel to supply gas to the Daytown refinery of the Humble Oil & Refining Co. The company is now delivering 45,000,000 feet of gas per day to Houston and San Antonio. A survey is being made for an 80-mile extension from Lucas, Live Oak County, into Webb County to connect with the Houston Oil Co.'s gas wells in that section.

TO AMEND CANADIAN REGULATIONS ON OIL

CHATHAM, Ont., Mar. 27.—Speaking in the Alberta legislature at Edmonton recently, J. Russell Love, member for Wainwright, urged that regulations governing oil and gas development be made more pliable to encourage development. Mr. Love stated that with 80 oil companies holding provincial charters and many others under federal incorporation with a combined capitalization of $100,000,000, only 15 drills were at work in Alberta. He advocated having official logs of all wells kept by the government, and a complete laboratory for analysis established at the University of Alberta.

The fact that oil rights were held by the crown and regulations were subject to change by order in council, Mr. Love contended, deterred American capital from entering the field; and he urged that, with the transfer of natural resources to the province, Alberta should at once establish definite regulations governing oil leases. For the protection of the investing public, no company should be allowed to spend any money until there was sufficient to guarantee a complete drilling test.

J. B. M'CLINTOCK DEAD

PITTSBURGH, Pa., Mar. 27.—James Brown McClintock, retired oil operator, was fatally burned at his home in this city while dressing before an open fire. Deceased was 78 years of age. He was a son of Jonas McClintock, who was known as the boy mayor of Pittsburgh.

C. W. KLAUSER DIES

Another old-time Trenton Rock operator, Charles W. Klauser, 64, died in Toledo, Ohio, recently. When the Trenton Rock Field was opened Mr. Klauser, with his brothers Herman and Arthur, developed some very good holdings.

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BODY OF COLONEL LYONS RECOVERED FROM RIVER

PITTSBURGH, Pa., Mar. 27.—The body of a man identified as that of Col. U. G. Lyons, wealthy oil man of Warren, Pa., who was drowned in the Allegheny River at Springdale last November 22, was taken from the Ohio River at Ambridge. Identification was made through a handkerchief with the initials "U. G. L." A watch bearing the inscription, "Frances to Grant, 1911," was also found on the body.

The remains of the oil man, who met his death when his house boat was swept over a dam while he was on his way to New Orleans, were found lodged in a mass of driftwood which had collected about a fleet of flatboats and barges tied up for the winter opposite the American Bridge Co. plant at Ambridge. The body was revealed when William E. Muller, superintendent of the Ohio River Sand Co., owner of the boats, and his brother John, moved the craft in preparation for the summer season.

A long search was conducted for the body by river men and others and a reward of $1,000 was offered by relatives of Lyons for its recovery.

The Muller brothers said they would divide the reward.

LIMA FIELD HOLDINGS ACQUIRED BY OKO CO.

LIMA, Ohio, Mar. 27.—The Oko Oil & Gas Co. of Lima, recently organized with a capital of $500,000 and consisting of oil men in the Lima Field, through its president, Mack P. Colt, has purchased from the Watson Oil Co. of Parkersburg, W. Va., its entire holdings in Mercer County, in the Lima Field of northwestern Ohio, consisting of approximately 2,000 acres of leases with 107 producing wells. The purchasing price was on a basis of about $1,900 per barrel. There are 50 to 60 good locations on the leases yet to drill, which will be drilled as the market justifies it.

The company recently purchased a block of 360 acres in the Hotmier Pool of Jay County, Indiana, with a production close to 32 bbls. at the price around $1,500 per barrel. The Oko Co. will keep the drill moving in several spots in the Lima Field as well as on its holdings in Kansas and Oklahoma.

KENTUCKY PRODUCTION

By T. S. Scott
Secretary Kentucky Oil Men's Association

Production of crude petroleum in Kentucky during January was as follows:

County—	Prod.
Allen	19,900.08
Barren	24,689.46
Bath	589.50
Clinton	20.06
Cumberland	2,865.33
Daviess	2,122.02
Estill	28,788.86
Floyd	914.19
Hancock	2,640.34
Hopkins	1,503.60
Jackson	34.60
Johnson	80,328.21
Lawrence	53,051.81
Lee	125,403.06
Logan	68.56
Magoffin	65,286.95
McCreary	463.61
Menifee	130.70
Monroe	542.64
Morgan	373.28
Ohio	18,190.36
Owsley	1,202.58
Powell	12,709.14
Simpson	181.77
Warren	34,661.67
Wayne	9,577.62
Wolfe	4,402.28
Boyd	175.60
Elliott	659.51

DEATH OF JOSEPH MINNICK

BRADFORD, Pa., Mar. 27.—Joseph Minnick, age 75 years, who operated for more than 40 years in the Duke Center district of the Bradford Field, died at his home in this city. Mr. Minnick was a successful oil producer. He is survived by his widow and three sons, J. K. Minnick of Amarillo, Tex., and Lawrence E. and Clarence of Duke Center, and two daughters, Mrs. O. E. Grow of Parkersburg, W. Va., and Mrs. A. D. Kahle of Duke Center.

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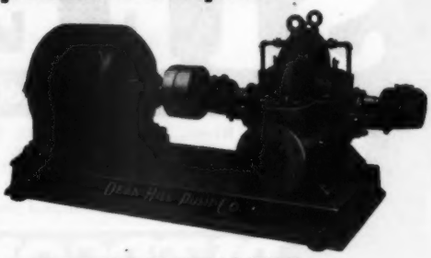

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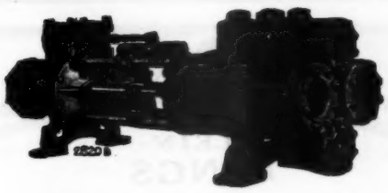

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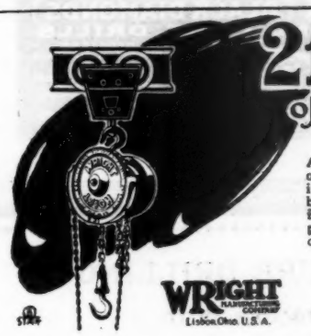

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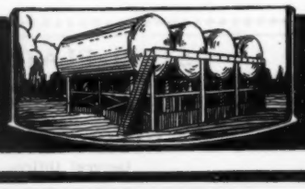

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TULSA, OKLA.

EXTENSION OF TIME UNDER OIL PERMITS

By Charles E. Kern
Washington Bureau
The Oil and Gas Journal

WASHINGTON, D. C., Mar. 27.—The Committee of Public Lands of the House of Representatives has made a favorable report on Senate bill 2461, to grant extension of time under oil and gas permits. The provision of this bill for a two year extension was at first objected to by the Secretary of the Interior, but this objection was later withdrawn.

The act of January 11, 1922, provides that extension of time on oil and gas prospecting permits may be granted for a period of three years beyond the two years' period for which the permit was granted, in cases where the permittee has been unable, with the exercise of dilligence, to drill the land. Thus permits may be kepts in force for a period of five years and ordinarily this period of time is sufficient. The present bill permits in the discretion of the Secretary of the Interior, a further extension, in such cases, of two years.

TO RESERVE OIL RIGHTS

WASHINGTON, D. C., Mar. 27.—Approximately 29,880 acres of public lands in Nevada have been temporarily withdrawn pending exchange for State owned lands by an executive order issued on a recommendation of the Secretary of the Interior. The State of Nevada, upon taking title to the 29,880 acres of public land agrees to the reservation of oil and gas rights to the United States.

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PROPOSES AMENDING GILSONITE PERMITS

WASHINGTON, D. C., Mar. 27.—The House Committee on Public Lands has reported favorably with amendments H. R. 5385 to grant exclusive rights to prospects for asphalt, gilsonite, elaterite, and like substances, not provided for in the mineral leasing act of 1920. The bill would apply to lands not known to be valuable for such deposits and restricts a prospecting permit to 640 acres. Where the lands are known to contain these minerals the amount is restricted to 320 acres.

At present there is no law to issue such permits. Present production rests with two or three companies, who it is said more or less monopolize the industry. The committee states this legislation would open the gilsonite lands to exploration and would give small companies or private individuals the right to compete with the present producers who are not subject to or bound by any regulations governing the production of the minerals. The legislation has the approval of the Secretary of the Interior.

MEXICAN PANUCO IN COLOMBIA

NEW YORK, Mar. 27.—Mexican Panuco Oil Co. has increased its oil lands in South America to 3,200,000 acres through the purchase of the Cararo-Guayabito and Open-Granouri oil lands in Colombia, on the Magdaline River, approximating 300,000 acres. The property adjoins the de Mares concession of the International Petroleum Co. Mexican Panuco also controls 1,900,000 acres in Venezula and 1,000,000 acres in British Guinea.

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Crane Co.
Frick-Reid Supply Co.
Kelly & Jones Co.
Walworth Mfg. Co.
Fittings—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Kennedy Valve Mfg. Co.
Lufkin Foundry & Machine Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.
Fittings—Steel—
Dayton Pipe Coupling Co.
Kelly & Jones Co.
Kerotest Mfg. Co.
Ohio Steel Foundry Co.
Flanges—Brass, Iron and Steel—
Kelly & Jones Co.
Metric Metal Works.
Flange Unions—
Gaso Pump & Burner Mfg. Co.
Flashlights—
National Carbon Co.
Floating Roofs and Decks—
Chicago Bridge & Iron Works.
Floodlights—
Pyle-National Co.
Floor Circle Braces (See Braces)
Force Feed Lubricators (See Lubricators)—
Forging Billets—
Andrews Steel Co.
Harrisburg Pipe & Pipe Bending Co.
Heppenstall Forge & Knife Co.
Forgings—
Champion Machine & Forging Co.
Milwaukee Forge & Machine Co.
Friction Clutch Pulleys (See Pulleys)—
Fuel Oil (See Oil—Fuel)—

G

Gas and Oil Gate Valves (See Valves)—
Gas Compressors (See Compressors—Gas)—
Gas Engines (See Engines—Gas)
Gas Holders—
Chicago Bridge & Iron Works.
Gaskets—
Garlock Packing Co.
McCord Radiator & Mfg. Co.
Gaskets—Fibre—
Durabla Mfg. Co.
Gas Masks & Safety Appliances—
Mine Safety Appliance Co.
Gas Meters (See Meters)—
Gas Oil (See Oil—Gas)—
Gasoline—
Berry's James B. Sons Co.
Crown Central Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
Gasoline—Natural—
Chestnut & Smith Corp.
Warren Petroleum Co.
Gasoline Plant Equipment—
Bessemer Gas Engine Co.
Clark Brothers Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.
Widdell Engineering Co.
Gas Regulator Casinghead—
Davis Regulator Co.
Gas Regulators—
Chaplin Fulton Mfg. Co.
Davis Regulator Co.
Fisher Governor Co.
Metric Metal Works.
Smith Separator Co.
Gas Scrubbers—
Newton Process Mfg. Co.
Gauge Glass—High Pressure—
Durabla Mfg. Co.
Gauge Poles—
Marsh Gauge Pole Co.
Gauges—Pressure and Vacuum—
Bristol Co.
Equitable Meter & Mfg. Co.
Metric Metal Works.
Gauges—Test—
Equitable Meter & Mfg. Co.
Metric Metal Works.
Gear Driven Pumps (See Pumps)
Gears—Cut—
Nuttall, R. D., & Co.
Gears—Reduction—
Emsco Derrick & Equipment Co.
Nuttall, R. D., & Co.
Gears—Reverse—
Emsco Derrick & Equipment Co.
Generators—
Westinghouse Electric & Mfg. Co.
Generators—Acetylene—
Oxweld Acetylene Co.
Generators—Steam—
Baker Motors, Inc.
Generators—Turbine—
Moon Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.
Glass Bottles (See Bottles, Glass)
Glassware—Chemical for Laboratory Use—
Illinois Glass Co.
Governors—
Equitable Meter & Mfg. Co.
Gardner Governor Co.
Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.
Grey Iron Castings (See Castings)

H

Hammers—Chipping and Calking Pneumatic—
Chicago-Pneumatic Tool Co.
Hammers—Riveting Pneumatic—
Chicago Pneumatic Tool Co.
Hangers—Iron and Steel—
Dodge Mfg. Corp.
Hatches—Gauge and Thief—
Oil Conservation Engineering Co.
Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
Heat Interchangers—Fluid—
Braun, C. F., & Co.
Ross Heater & Mfg. Co., Inc.
High Pressure Gate Valves (See Valves)—
Hoists—Pneumatic, Geared and Universal—
Chicago Pneumatic Tool Co.
Yale & Towne Mfg. Co.
Hoists—Portable—
Sullivan Machinery Co.
Wright Mfg. Co.
Yale & Towne Mfg. Co.
Hooks for Rods and Tubing—
Dunn Mfg. Co.
Hose—
Fenwick-Reddaway Mfg. Co.
Hose—Drillers—
Goodrich, B. F., Rubber Co.
United States Rubber Co.
Hose—Oil Suction and Discharge
Goodrich, B. F., Rubber Co.
United States Rubber Co.
Hose—Rubber—
Goodyear Tire & Rubber Co.
United States Rubber Co.
Hot Rolled Strip Steel (See Steel)
Hydraulic Gate Valves (See Valves)—
Hydraulic Jacks (See Jacks)—
Hypochlorite of Lime—
Mathieson Alkali Works, Inc.

I

Insulation Materials—
Celite Products Co.
Johns-Manville, Inc.
Insurance—Fire—
Oil Insurance Association.
Insurance—Tornado—
Oil Insurance Association.
Iron—Ingot—
American Rolling Mill Co.

J

Jacks—Hydraulic—
Bridgeport Machine Co.
Jacks—Lifting—
Templeton, Kenly & Co., Ltd.
Jacks—Pumping—
American Wells Works.
Bessemer Gas Engine Co.
Braden Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Norris, W. C.
Spang & Co.
Jars—
Arbon, Paul, & Co.
Bridgeport Machine Co.
Spang & Co.
Jar Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

K

Kerosene—
Acme Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Skelly Oil Co.

L

Lacquers—
Arco Company, The
Sherwin-Williams Co.
Lanterns—Electric—
Delta Electic Co.
Lead and Mixed Metal Products—
Eagle-Picher Lead Co.
Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.
Lead Wool and Containers—
Eagle-Picher Lead Co.
Lifting Jacks (See Jacks)—
Lighting Equipment—
Climax Engineering Co.
Pyle National Co.
Westinghouse Electric & Mfg. Co.
Liquid Level Controls (See controllers)—
Litharge—
Eagle-Picher Lead Co.
National Lead Co.
Loaders—Trucks—
Barber-Greene Co.
Long Distance Telephone—
American Telephone & Telegraph Co.
Lubricating Devices—
McCord Radiator & Mfg. Co.
Lubricating Oils (See Oils)—
Lubricators—
Ajax Iron Works.
Lunkenheimer Co.
Lubricators—Force Feed—
Manzel Brothers Co.
McCord Radiator & Mfg. Co.

M

Machine Tools—
Ryerson, Jos. T., & Sons, Inc.
Manifolds—
Reid, Joseph, Gas Engine Co.
Metal Buildings Sectional (All Types) (See Buildings)—
Meters—Gas—
Equitable Meter & Mfg. Co.
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M., Co.
Westcott & Greis.
Meters—Gasoline—
Pittsburgh Meter Co.
Meters—Oil—
Pittsburgh Meter Co.
Molded Goods—Rubber—
Goodyear Tire & Rubber Co.
Motor Controlled Apparatus (See Apparatus—Motor Control)—
Motors—Electric—
Fairbanks-Morse & Co.
Westinghouse Electric & Mfg. Co.
Motors—Gasoline (See Engines—Gasoline)—
Motor Trucks (See Trucks—Motor)—

N

Naphtha—
Pure Oil Co.
Natural Gasoline (See Gasoline—Natural)—
Natural Gasoline Plant Equipment
American Tank Co.
Campbell, J. A.
Continental Supply Co.
Cooper, C. & G., Co.
Griscom-Russell Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.
Smith Separator Co.
Westcott & Greis.
Nitrogen—
Linde Air Products Co.
Nozzles—Spray—
Power Plant Equip. Co.

O

Oil and Gas Pipe Line Construction—
Hope Engineering & Supply Co.
Oil Burners (See Burners—Oil)—
Oil Engines, Semi-Diesel (See Engines—Semi-Diesel Oil)—
Oil Field Equipment—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kaw Boiler Works Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Simplex Equipment Co.
Trumble Gas Trap Co.
Oil Filters —(See Filters—Oil)—
Oil—Fuel—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The
Oil—Gas—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The
Oil—Lubricating—
Barnsdall Refining Co.
Berry's James B., Sons Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pennzoil Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
Texas Company, The
Oil—Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pennzoil Co.
Pure Oil Co.
Skelly Oil Co.
Oiling Devices—
Lunkenheimer Co.
Oil Meters (See Meters)—
Oil Piping Equipment (See Fittings)—
Oil Reclaiming Process—
Barnickel, Wm. S., & Co.
Houston Pump & Supply Co.
Oil Refinery Equipment (See Refinery Equipment)—
Oil Securities (See Securities)—
Oil Suction and Discharge Hose—(See Hose)—
Oil Well Cementing—
Halliburton, Erle P.
Oil Well Screens (See Screens)—
Oil Wells Tools—
D & B Pump & Supply Co.
Hinderliter Tool Co.
Reed Roller Bit Co.
Titusville Forge Co.
U. S. Tool Co.
Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.
Packers—
Goodyear Tire & Rubber Co.
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.
United States Rubber Co.
Packing—
Crane Packing Co.
Durabla Mfg. Co.
Garlock Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville, Inc.
Packing—Metallic—
Crane Packing Co.
Paint Guns—
Binks Spray Equipment Co.
Painting Equipment—Mechanical
Matthews, W. N., Corp.
Paints—
Aluminum Co. of America.
American Asphalt Paint Co.
Arco Company, The
Continental Supply Co.
Cook Paint & Varnish Co.
Dixon, Joseph Crucible Co.
Eagle-Picher Lead Co.
Eclipse Paint & Mfg. Co.
Sherwin-Williams Co.
Pipe—Cast Iron—
American Cast Iron Pipe Co.
Continental Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.
Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.
Pipe—Steel—
Greenspon's, Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Murray Tool & Supply Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T., & Sons, Inc.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.
Pipe—Wrought Iron—
Byers, A. M., Co.
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
Superior Tube Co.
Pipe and Nipple Threading Machines—
Bignall & Keeler Machine Works.
Cox & Sons Co., The
Landis Machine Co.
Ryerson, Jos. T., & Sons, Inc.
Standard Engineering Co.
Pipe Clamps (See Clamps—Pipe)
Pipe Fittings (See Fittings)—
Pipe Grips—
Larkin & Co.
Pipe Headers—
National Tube Co.
Newton Process Mfg. Co.
Pipe Line Construction Tools—
National Transit Pump & Machine Co.
Pipe Line Ditchers (See Ditchers)
Pipe Line Equipment—
Gaso Pump & Burner Mfg. Co.
Pipe Screwing Machines—
Buckeye Traction Ditcher Co.
Pipe Suspension Device—
Stearns-Roger Mfg. Co.
Pipe Threading Dies (See Dies)—
Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works.
Piping—Fabricated—
Kelly & Jones Co.
Midwest Piping & Supply Co.
Piping—Hard Rubber—
United States Rubber Co.
Piping—Steel & Iron—
Crane Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Power Piping Co.
Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.
Pistons—Expansion—
Wilson Oil Tool Corp.
Pistons—Slush Pump—
Guiberson Corp.
Plain End Pipe Couplings (See Couplings—Plain End Pipe)—
Plugs—Bottom Water—
Guiberson Corp.
Polish Rods (See Rods—Polish)—
Portable Drilling Rigs (See Rigs)
Power Pumps (See Pumps)—
Power Units—Portable (See Engines)—
Pre-Heaters—
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.
Preservatives—Asphalt—
American Asphalt Paint Co.
Pulleys—Wood, Iron and Steel—
Dodge Mfg. Co.
Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Safety Pulling Machine Co.
Pumpers—Long Stroke—
Farley Machine Co.
Pumping and Pulling Motors—Electric—
Westinghouse Electric & Mfg. Co.
Pumping Equipment—
American Well Works.
Axelson Machine Co.
Bryson Jackson Pump Mfg. Co., Inc.
D & B Pump & Supply Co.
Farley Machine Co.
Goulds Mfg. Co.
Jones, S. M., Co.
Myers, F. E., Bros. & Co.
Northrup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Ratigan, J. P., Co.
Waukesha Motor Co.
Pumping Gear Units—
Nuttall, R. D., & Co.
Pumping Jacks (See Jacks)—
Pumping Powers—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Buda Co.
Climax Engineering Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Marion Mch., Fdy. & Supply Co.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spence Machine Co.
Titusville Iron Works Co.
Pumps—Boiler Feed—
Ajax Iron Works.
Byron Jackson Pump Mfg. Co., Inc.
Fairbanks-Morse & Co.
Gardner Governor Co.
Oil Well Supply Co.
Pumps—Centrifugal—
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Dean Hill Pump Co.
Fairbanks-Morse & Co.
Worthington Pump & Machinery Corp.
Pumps—Direct Driven—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Pumps—Electric—
Prescott Co.
Pumps—Fuel Oil Service—
Aldrich Pump Co.
Blackmer Pump Co.
Northern Fire Apparatus Co.
Pumps—Fuel Oil Transfer—
Aldrich Pump Co.
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Pumps—Gasoline and Oil for Filling Stations—
Gilbert & Barker Mfg. Co.
Pumps—Gear Driven—
Aldrich Pump Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.
Pumps—Hot Oil—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Pumps—Pipe Line—
Aldrich Pump Co.

Byron Jackson Pump Mfg. Co., Inc.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
National Transit Pump & Machine.
Prescott Co.
Worthington Pump & Machinery Corp.

Pumps—Power—
Aldrich Pump Co.
Dean Brothers Co.
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Myers, F. E., Bro. & Co.
National Transit Pump & Machine Co.
Novo Engine Co.
Prescott Co.
Waukesha Motor Co.

Pumps—Refinery—
Aldrich Pump Co.
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Dean Hill Pump Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Kinney Mfg. Co.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.

Pumps—Rotary—
Blackmer Pump Co.
Northern Fire Apparatus Co.
Roots, P. H. & F. M., Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam—
Dean Brothers Co.
Fairbanks-Morse Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.

Pumps—Water—
Aldrich Pump Co.
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Gaso Pump & Burner Mfg. Co.
Northern Fire Apparatus Co.
Prescott Co.

Purifiers—Oil Absorption—
Sharpless Specialty Co.

Pyrometers—
Brown Instrument Co.
Republic Flow Meters Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Ratchet Reamers—
Nye Tool & Machine Works.

Ratchet Stocks and Dies—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Ratchet Wrenches (See Wrenches)

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Equitable Meter & Mfg. Co.
Metric Metal Works.

Refinery Equipment—
American Radiator Co.
Braun, C. F., & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works.
Graver Corp.
Griscom-Russell Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Appliance Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Reid, Joseph, Gas Engine Co.
Ross Heater & Mfg. Co., Inc.
Ross-Meehan Foundries.
Smith, A. O., Corp.
Smith Separator Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis.
Widdell Engineering Co.

Refinery Pumps (See Pumps)—

Refractories—Furnace, Stills and Baffles—
Botfield Refractories Co.

Refrigerating Machinery—
Carbondale Machine Co.
Climax Engineering Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Fisher Governor Co., Inc.
Smith Separator Co.

Regulators—Gas—
Equitable Meter & Mfg. Co.

Rental Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons—
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

River Clamps (See Clamps)—

Rods—Polish—
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Columbus Sucker Rod Co.
Jones, S. M., Co.
Sheffield Steel Corp.

Rods—Sucker—
Axelson Machine Co.
Columbus Sucker Rod Co.
D & B Pump & Supply Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Sheffield Steel Corp.

Rods—Valve—
Jones, S. M., Co.

Roofing—Asbestos—
Johns-Manville, Inc.

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manila—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Broderick & Bascom Rope Co.
International Supply Co.
Jarecki Mfg. Co.
Leschen, A. & Sons. Rope Co.
Wickwire-Spencer Steel Corp.

Rotary Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Rotary Disc Bits (See Bits)—

Rotary Drilling Equipment—
Climax Engineering Co.
Continental Supply Co.
Emsco Derrick & Equipment Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co.

Rotary Drive Bushings (See Bushings—Rotary Drive)—

Rotary Lines (See Rope—Wire)—

Rotary Post—
Reed Roller Bit Co.

Rotary Rock Bits (See Bits)—

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.

Rotary Ventilators (See Ventilators)—

Rubber Belting (See Belting)—

Rubber Hose (See Hose)—

Run Down Tanks (See Tanks)—

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Lines—Manila —
Ajax Rope Co., Inc.

Sand Lines—Wire—
Ajax Rope Co., Inc.
Broderick & Bascom Rope Co.
Wickwire-Spencer Steel Corp.

Sand Pumps (See Pumps, Sand)—

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws Temper—
Burns Tool Co.

Seamless Steel Couplings—(See Couplings Seamless Steel)—

Separators—Centrifugal—
Miller, Max B., & Co.
Sharpless Specialty Co.

Separators—Gas and Oil—
American Tank Co.
Smith Separator Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Corrugated, Black and Galvanized—
American Sheet & Tin Plate Co.
Ryerson, Jos., T., & Son, Inc.
United Alloy Steel Corp.

Sheets—Steel—
American Sheet & Tin Plate Co.
Republic Iron & Steel Co.
Sheffield Steel Corp.
United Alloy Steel Corp.

Shingles—Asbestos—
Johns-Manville, Inc.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Slush Pump Pistons (See Pistons)—

Slush Pumps—(See Pumps)—

Smoke Stacks—
Donovan Boiler Works.

Snuffers—Fire—
Simplex Equipment Co.

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Swivel—
Arbon, Paul, & Co.

Sockets—Wire Rope—
Chicago Steel Foundry Co.

Soda Ash—
Mathieson Alkali Works, Inc.

Soda—Caustic—
Mathieson Alkali Works, Inc.

Solders—Bar and Wire—
Eagle-Picher Lead Co.
Hoyt Metal Co.

Spark Plugs—
Mosler Metal Products Corp.

Spears—
Acme Fishing Tool Co.
Brown Welding & Machine Co.

Special Steel (See Steel Special)—

Split Sleeves (See Sleeves)—

Sprockets—Power Transmission—
Ajax Iron Works.
Chain Belt Co.

Stands—Vise—
Nye Tool & Machine Works.

Stationary Pipe Threading Die Heads (See Die Heads)—

Steel—All Kinds—
Ryerson, Jos., T., & Son, Inc.

Steel—Alloy—
Central Steel Co.
Timken Roller Bearing Co.
United Alloy Steel Corp.

Steel—Bit—
Central Steel Co.

Steel—Hot Rolled Strip—
Central Steel Co.

Steel—Special—
Central Steel Co.
United Alloy Steel Corp.

Steel Band Wheels (See Band Wheels—Steel)—

Steel Bridges—(See Bridges)—

Steel Bull Wheels (See Bull Wheels—Steel)—

Steel Castings (See Castings)—

Steel Couplings for Casing, Line Pipe, Drill Pipe and Tubing (See Couplings)—

Steel Crown Blocks (See Crown Blocks)—

Steel Derricks (See Derricks)—

Steel Fabricators—Structural—
Austin Co.
Braden Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Fittings (See Fittings)—

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.
Slater Brothers Turnbuckle Derrick Co.

Steel Plate Construction—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Steel Sheets (See Sheets, Steel)—

Steel Valves (See Valves—Steel)—

Steel Walking Beams (See Walking Beams—Steel)—

Steel Wheels and Tug Rims—
International Derrick & Equipment Co.

Stills—
Chicago Bridge & Iron Works.
Graver Corp.
Kaw Boiler Works Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Smith, A. O., Corp.
Vogt, Henry, Machine Co.
Widdell Engineering Co.

Stocks & Dies—
Borden Co.
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Structural Steel Fabricators (See Steel Fabricators)—

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sucker Rods (See Rods—Sucker)

Suction Pumps (See Pumps)—

Sulphuric Acid—
Eagle-Picher Lead Co.

Superheaters—Steam—
Power Plant Equip. Co.

Swabs—
Arbon, Paul, & Co.
Guiberson Corp.
Hoffman Mfg. Co.
Saunders Bros.
Simplex Equipment Co.

Swedge Nipples—
Dresser, S. R., Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tank Cars (See Cars—Tank)—

Tank Cars Leased (See Cars)—

Tank Equipment—
Oil Conservation Engineering Co.

Tanks—Bolted—
American Tank Co.
Butler Mfg. Co.
Maloney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station—
Butler Mfg. Co.
Graver Corp.

Tanks—Cylindrical—
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works.

Tanks—Field Storage—
American Car & Foundry Co.
American Tank Co.
Donovan Boiler Works.
Graver Corp.
Kaw Boiler Works.
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburgh-Des Moines Steel Co.
Riter-Conley Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Graver Corp.
Kaw Boiler Works Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Donovan Boiler Works.
Graver Corp.
Kaw Boiler Works Co.
Newton Process Mfg. Co.

Tanks—Truck—
American Tank Co.
Butler Mfg. Co.
White Co.

Tanks—Underground—
Butler Mfg. Co.
Gilbert & Barker Mfg. Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.

Tanks—Welded—
American Tank Co.
Chicago Bridge & Iron Works.

Taper Taps—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.

Temperature Controllers (See Controllers—Temperature)—

Temper Screws (See Screws)—

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Taylor Instrument Co.

Threading Machines—
Bignall & Keeler Machine Wks.
Cox & Sons Co., The
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tires—Automobile—
Continental Supply Co.

Tongs—
Bridgeport Machine Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing—
Dunn Mfg. Co.
Guiberson Corp.

Tongs—Chain Pipe—
Armstrong Bros. Tool Co.
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Rotary—
Dunn Mfg. Co.

Tongs—Tool Joint—
Guiberson Corp.
Hughes Tool Co.
Reed Roller Bit Co.

Tongs—Tubing—
Dunn Mfg. Co.

Tool Chests—Pipe—
Nye Tool & Machine Works.

Tool Joints—
Bridgeport Machine Co.
Federal Supply Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Regan Forge & Engineering Co.

Tool Joint Tongs (See Tongs)

Tools—Fishing and Drilling (See Drilling and Fishing Tools)—

Tools—Oil Well Drilling (See Drilling and Fishing Tools)—

Torches—
Oxweld Acetylene Co.

Tractor Oil (See Oil—Tractor)—

Tractors—
International Harvestor Co. of America.
Rock Island Plow Co.

Transmission Belt—Rubber—
Goodrich, B. F. Rubber Co.
United States Rubber Co.

Transmission Lining—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Trenchers—Vertical Boom—
Barber-Greene Co.

Trucks—Motor—
Ford Motor Co.
General Motors Truck Co.
International Harvester Co. of of America.
White Co.

Truck Tanks (See Tanks)—

Truck Tires (See Tires—Truck)—

Tubes—Boiler, Charcoal Iron—
Byers, A. M., Co.
Reading Iron Co.

Tubes—Boiler Steel—
National Tube Co.
Ryerson, Jos. T., & Son, Inc.

Tubing—
Babcock & Wilcox Tube Co.
Byers, A. M., Co.
Central Tube Co.
National Tube Co.
Reading Iron Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Tubing Catchers—
Dunn Mfg. Co.
Guiberson Corp.

Tubing Elevators (See Eelevators, Casing and Tubing)—

Tubular Goods—
Oil Well Supply Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.

Tubular Goods—Wrought Iron—
Byrs, A. M., Co.
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Turbine Generators (See Generators—Turbine)—

Turnbuckle Derricks (See Derricks)—

U

Underground Tanks (See Tanks)

Underreamer Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamer Cutter Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Brown Welding & Machine Co.
Guiberson Corp.
Wilson Oil Tools Corp.

Unions—
Continental Supply Co.
Kelly & Jones Co.

V

Vacuum Pumps (See Pumps)—

Valuations—
American Appraisal Co.

Valves—Blow-off—
Homestead Valve Mfg. Co.

Valves—Brass and Bronze—
Homestead Valve Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Mfg. Co.

Valves—Cast Steel—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.

Valves—Drop Forged Steel—
Edward Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves—Gate—High and Low Pressure—
Chapman Valve Mfg. Co.
Continental Supply Co.
Crane Co.
Darling Valve & Mfg. Co.
Kelly & Jones Co.
Kennedy Valve Mfg. Co.
Kerotest Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Murray Tool & Supply Co.
Powell, Wm., Co.

Valves—Iron—
Chapman Valve Mfg. Co.
Lunkenheimer Co.
Reading Steel Casting Co.

Valves—Metal Pump—
Durabla Mfg. Co.

Valves—Pump—
United States Rubber Co.

Valves—Relief—Supersensitive—
Davis Regulator Co.

Valves—Steel—
Chapman Valve Mfg. Co.
Edward Valve Mfg. Co.
Kelly & Jones Co.
Kerotest Mfg. Co.
Lunkenheimer Co.
Metric Metal Works.
Powell, Wm., Co.
Reading Steel Casting Co.

Valves—Tank Vent—
Oil Conservation Engineering Co.

Valves—Working Barrel—
Atlas Ball Co.
Axelson Machine Co.
D & P Pump & Supply Co.
Hough, Charles N., Mfg. Co.
Northup Equipment Co.
Oil Well Supply Co.

Varnishes—
Arco Company, The.
Sherwin-Williams Co.

Ventilators—Rotary—
Swartwout Co.

Vises—Bench—
Nye Tool & Machine Works.

Vises—Pipe—
Nye Tool & Machine Works.

Vises—Post—
Nye Tool & Machine Works.

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Emsco Derrick & Equip. Co.
Moore, Lee C., & Co., Inc.

Water Cooling Systems—
Power Plant Equip. Co.

Water Gauge Cocks (See Cocks)—

Water Pumps (See Pumps)—

Water Softeners and Filters—
Butler Mfg. Co.
Graver Corp.

Water Well Screens (See Screens)

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welded Tanks (See Tanks)—

Welding Accessories—Electric—
Wilson Welder & Metals Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welding Machines—Electric—
Wilson Welder & Metals Co.

Welding Supplies—
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Oxweld Acetylene Co.
Wilson Welder & Metals Co.

Well Drilling and Fishing Tools—(See Drilling and Fishing Tools)—

Well Drilling Equipment (See Drilling Equipment)—

Well Shooting—
Eastern Torpedo Co.
Zero Hour Torpedo Co.

Wheels—Pipe Cutter—
Nye Tool & Machine Works.

Wheel—Steel Automotive—
Budd Wheel Co.

Winches—
Braden Co.
Oil Conservation Engineering Co.

Wire Lines (See Cables—Steel)—

Wire Rope (See Rope—Wire—

Wood Patterns and Models—
Gaso Pump & Burner Mfg. Co.

Working Barrels—
Axelson Machine Co.
D & B Pump & Supply Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Norris, W. C.
Northrup Equipment Co.
Oil Well Supply Co.

Working Barrel Valves (See Valves—Working Barrel)—

Wrenches—Closet Spuds—
Nye Tool & Machine Works.

Wrenches—Drop Forged—
Williams, J. H., & Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Mfg. Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.
Nye Tool & Machine Works.

Z

Zinc Oxide—
Eagle-Picher Lead Co.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for January, 1926

Runs

	Month	Da. Av.
*Prairie Pipe Line Co.	3,782,000	122,000
Gulf Pipe Line Co.	1,110,284	35,814
Texas Pipe Line Co.	563,707	18,184
Magnolia Petroleum Co.	1,095,747	35,347
Cosden Pipe Line Co.	786,636	25,372
Empire Pipe Line Co.	693,036	22,356
Sinclair Pipe Line Co.	1,594,454	51,434
*Other lines	7,285,000	235,000
Total January	16,910,854	545,507
Total December	17,429,710	562,249

Shipments

†Prairie Pipe Line Co.	4,187,390	135,077
Gulf Pipe Line Co.	1,114,750	35,960
Texas Pipe Line Co.	544,931	17,578
Magnolia Petroleum Co.	1,267,083	40,873
Cosden Pipe Line Co.	935,599	30,181
Empire Pipe Line Co.	741,950	23,931
†Sinclair Pipe Line Co.	2,533,723	81,733
*Other lines	7,843,000	253,000
Total January	19,168,415	618,233
Total December	20,050,761	646,863
Difference	882,346	28,630

Stocks

	Bbls.
*Prairie Oil & Gas Co.	27,300,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line & Gypsy Oil Co.	6,660,284
The Texas Co.	4,409,047
Magnolia Petroleum Co.	5,744,000
Cosden Pipe Line Co.	1,693,657
Empire Pipe Line Co.	2,966,141
*Sinclair Crude Oil Purchasing Co.	22,000,000
Carter Oil Co.	15,480,643
*Other lines	10,000,000
Total January	98,258,772
Total December	99,352,522
Difference	1,093,750

*Estimated.

†Prairie shipments also include Texas crude oil and Sinclair shipments include also Wyoming and Texas crude oil.

Note—Stocks do not include approximately 5,900,000 bbls. held in storage on private tank farms and leases.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '26	Feb. '26
Nat. Transit	143,083.02	140,437.20
S. W. Pa. P. L.	77,636.84	82,218.00
Eureka P. L.	328,099.81	328,709.96
Buckeye P. L. (Macksburg)	279,460.58	275,240.87
Buckeye P. L. (Cleveland)	11,364.93	10,297.41
Buckeye P. L. (Lima, etc.)	117,302.17	117,052.32
Indiana P. L.	8,872.26	9,530.67
Cumberland P. L.	264,029.33	257,256.68
N. Y. Transit	18,738.53	17,815.08
Tidewater P. L.	145,119.51	136,339.08
Pure Oil	168,182.43	158,793.42
Emery P. L.	48,775.97	43,885.55
Indian Ref.	80,966.82	80,656.88
Paragon Dev.	26,760.22	25,650.67
Pittsburgh P. L.	6,141.78	6,649.29
Total	1,724,524.19	1,691,032.98
Daily average	55,629.81	60,394.03

Note—Indian Refining Co. also reported other receipts of 280,008.91 bbls. Paragon Refining Co. had other receipts of 136,185.12 bbls. Paragon Development had other receipts of 1,750.32 bbls. Pure Oil had other receipts of 58,277.57 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pensylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '26	Feb. '26
Nat. Transit	288,806.28	300,294.95
S. W. Pa. P. L.	366,562.67	320,351.13
Eureka P. L.	164,947.50	148,099.79
Buckeye P. L. (Macksburg)	117,122.01	122,324.18
Buckeye P. L. (Cleveland)	1,122.83	969.77
Buckeye P. L. (Lima, etc.)	786,501.04	705,531.60
Indiana P. L.	1,163,995.13	1,099,401.49
Cumberland P. L.	102,188.71	150,113.41
N. Y. Transit	708,005.50	526,231.48
Northern P. L.	135,305.06	122,498.92
Tidewater P. L.	107,972.02	143,555.36
Pure Oil	324,558.49	311,673.48
Emery P. L.	41,988.55	44,896.24
Paragon Ref.	161,272.07	118,033.56
Indian Ref.	428,138.88	421,529.31
Paragon Dev.	31,314.40	23,864.81
Pittsburgh P. L.	7,640.10	6,292.15
Total	4,837,741.24	4,465,661.53
Daily average	156,056.29	159,487.91

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of January and February, were as follows:

	Jan. '26	Feb. '26
Nat. Transit	1,010,068.01	1,010,062.31
S. W. Pa. P. L.	705,514.46	668,593.49
Eureka P. L.	1,503,389.89	1,514,235.47
Buckeye P. L. (Macksburg)	335,515.41	372,524.75
Buckeye P. L. (Cleveland)	72,522.50	66,885.32
Buckeye P. L. (Lima, etc.)	2,773,898.18	2,402,586.47
Indiana P. L.	536,488.64	550,608.52
Cumberland P. L.	607,313.30	583,281.41
Southern P. L.	497,782.56	532,095.25
N. Y. Transit	659,952.29	721,540.07
Northern P. L.	449,408.69	481,120.13
Pure Oil	400,945.59	405,108.77
Emery P. L.	30,751.95	29,360.37
Paragon Ref.	48,043.84	71,433.17
Indian Ref.	218,689.98	159,991.34
Paragon Rev.	4,800.92	5,465.24
Pittsburgh P. L.	4,084.15	4,502.80
Total	9,859,170.36	9,579,394.88
Increase	599,275.00	279,775.48

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of January and February showing the gross stocks of the above fields:

	Jan. '26	Feb. '26
Penna.	3,862,226.25	3,895,733.10
Lima	1,025,702.95	1,022,956.97
Kentucky	1,197,665.71	1,181,936.95
Mid-Continent	3,717,998.58	3,396,996.28
Illinois	55,576.87	81,771.58
Total	9,859,170.36	9,579,394.88

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1923	1924	1925	1926
January	75,790	62,638	56,831	55,630
February	71,092	68,023	60,606	60,394
March	76,592	68,721	60,575	.....
April	75,514	71,058	63,062	.....
May	77,365	63,942	59,217	.....
June	77,593	63,230	61,270	.....
July	71,879	64,208	62,639	.....
August	76,910	59,942	59,686	.....
September	72,358	62,930	62,510	.....
October	76,256	64,976	60,995	.....
November	70,762	56,282	59,350	.....
December	69,271	55,814	57,974	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1923	1924	1925	1926
January	171,067	145,518	157,889	156,056
February	164,219	148,732	160,863	159,488
March	185,487	147,098	154,591	.....
April	170,751	147,611	151,429	.....
May	177,102	134,997	146,995	.....
June	173,598	143,010	149,467	.....
July	168,330	124,187	161,338	.....
August	142,776	123,120	161,730	.....
September	137,266	127,325	156,719	.....
October	134,597	123,170	145,383	.....
November	131,426	124,400	143,582	.....
December	139,909	151,392	150,162	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1924	1925	1926
January	12,907,202	11,353,276	9,859,170
February	11,844,068	11,192,924	9,579,354
March	10,906,752	11,158,297	.....
April	10,922,742	11,062,082	.....
May	11,335,309	11,207,562	.....
June	11,544,204	11,093,796	.....
July	12,062,361	11,067,453	.....
August	12,221,676	10,974,481	.....
September	12,206,836	10,781,763	.....
October	12,664,061	11,086,850	.....
November	12,268,530	11,068,158	.....
December	11,583,680	10,458,445	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1925—	Receipts	Shipmts.	Stocks
February	2,702.05	4,564.70	11,075.83
March	3,177.21	2,354.30	11,898.74
April	3,040.41	1,780.11	13,159.04
May	2,814.99	5,719.90	10,254.13
June	3,052.75	1,221.83	12,085.05
July	2,639.34	3,174.10	11,550.29
August	3,216.97	1,577.99	13,189.27
September	2,929.99	5,352.05	10,767.21
October	2,869.75	1,499.34	12,137.62
November	2,769.66	2,571.32	12,283.40
December	2,661.87	3,441.67	11,503.60
1926—			
January	2,990.16	1,478.35	13,015.41
February	2,580.23	2,776.19	12,819.45

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks March 1	2,525,834.95
Runs from wells	605,763.55
Other receipts	497,242.71
Regular deliveries	465,591.42
Other deliveries	461,229.17

The amount of Illinois oil run by the Tidewater Pipe Co. in February was 26,848.44 bbls. and deliveries were 40,719.09 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1925—		
March	754,335.68	611,348.49
April	622,865.14	637,242.85
May	692,671.94	668,573.62
June	700,090.46	589,535.24
July	724,481.26	564,713.19
August	673,652.38	650,649.97
September	706,434.87	510,697.61
October	706,532.00	633,682.32
November	664,556.30	488,449.19
December	665,086.99	578,938.47
1926—		
January	665,243.62	516,083.76
February	632,611.99	506,310.51

The Tidewater Pipe Co., Ltd., also delivered in February 115,542.91 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 299,817.36 bbls.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS						Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total		
November	7,032	9,419	14,358	12,903	9,161	52,773	.....	.....	5,033	306	5,338		58,011
December	6,226	12,129	28,452	20,193	9,677	76,677	.....	4,339	4,371	.....	9,710		86,387
January	9,355	13,484	33,581	19,287	5,097	79,804	.....	.....	.....	66	65		79,869
February	13,111	9,464	28,214	24,393	20,107	95,289	.....	.....	.....				95,289

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	
November	16,935	4,193	45,774	9,806	33,419	113,127	12,613	26,484	7,516	6,000	52,613	164,740
December	12,806	20,548	35,613	15,064	30,613	114,644	13,129	25,387	6,935	5,516	50,967	165,611
January	12,451	19,484	49,451	13,645	21,903	116,934	21,903	25,871	5,645	4,871	58,290	174,224
February	14,643	16,071	60,107	9,464	20,750	121,035	22,321	50,250	6,286	6,714	85,571	206,606

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
February:	Month	16,869,833	13,905,780	11,232,593	2,466,660	2,886,296	1,556,914	2,670,385	2,957,000	54,551,411
	Daily average	602,494	496,635	401,164	88,095	103,082	55,604	95,582	105,606	1,948,264
March:	Month	18,626,019	14,402,716	12,063,907	2,824,534	3,564,473	1,807,559	2,734,235	3,203,000	60,226,443
	Daily average	600,839	464,636	421,384	91,114	114,983	58,308	88,201	103,290	1,942,756
August:	Month	21,005,580	14,441,040	11,695,365	2,971,110	7,560,230	1,767,077	2,744,691	3,084,000	62,837,576
	Daily average	677,599	465,840	423,179	99,037	252,008	58,903	91,490	102,800	3,094,986
May:	Month	18,830,328	14,443,675	13,077,697	3,493,266	11,813,996	1,886,752	2,799,542	3,167,300	69,502,556
	Daily average	607,107	465,925	421,861	112,686	381,097	60,863	90,308	102,171	2,242,018
June:	Month	19,288,135	13,832,970	12,602,540	3,229,440	9,200,372	1,830,965	2,754,498	3,389,000	66,127,920
	Daily average	642,938	461,099	420,085	107,648	306,672	61,032	91,816	109,000	2,204,264
July:	Month	20,411,049	14,262,565	12,337,593	3,686,675	7,835,819	1,898,178	3,129,199	3,348,000	66,910,083
	Daily average	658,421	460,115	397,984	118,925	252,768	61,231	100,942	108,000	2,158,390
August:	Month	21,005,580	14,441,040	11,936,079	3,568,087	7,450,580	1,858,543	3,260,448	3,177,000	66,677,357
	Daily average	677,599	465,840	385,032	114,777	240,341	59,727	104,853	102,484	2,150,883
September:	Month	20,062,762	14,825,040	11,264,890	3,393,270	6,457,950	1,776,570	3,235,625	3,212,000	64,228,108
	Daily average	668,759	494,168	375,496	113,109	215,265	59,219	107,854	107,067	2,140,937
October:	Month	20,015,076	14,921,199	11,196,511	3,477,146	6,409,281	1,871,830	3,394,930	3,248,000	64,534,933
	Daily average	645,648	481,329	361,178	112,166	206,751	60,382	109,500	104,774	3,081,743
November:	Month	19,095,907	14,590,980	10,650,087	3,221,760	5,927,956	1,758,882	3,088,121	2,992,000	61,325,693
	Daily average	636,530	486,366	355,003	107,397	197,599	58,629	102,937	99,753	3,044,190
December:	Month	19,349,711	14,123,848	10,930,455	3,303,816	6,047,883	1,763,966	3,127,164	3,086,900	61,682,743
	Daily average	620,959	455,608	352,595	106,736	195,093	56,902	102,813	99,552	1,990,383
January:	Month	19,069,563	13,674,813	10,880,814	3,250,536	5,489,620	1,606,952	3,136,280	3,075,200	60,183,778
	Daily average	615,147	441,123	350,994	104,856	177,084	51,836	104,396	99,200	1,941,090
	Total 12 months	230,473,617	171,483,076	141,867,536	38,881,300	80,644,455	21,384,188	36,131,128	37,928,400	758,802,700
	Daily average	631,435	469,814	388,678	106,522	220,943	58,586	98,990	103,941	2,078,911

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